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# The Journal of Sociologic Medicine

Continuing the Bulletin of the

American Academy of Medicine

JUNE, 1916

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# The
# American Academy of Medicine

(*Specializing in Medical Sociology*)

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The *American Academy of Medicine* is an association engaged in direct and positiv social service, altho its methods are those of investigation and discussion, rather than those of direct application.

It strives:—

A. To determine the correct relation of the physician to the present social order and to deduce principles by which he can be adjusted to the same. For many years this effort was directed solely to the proper education of the physician. It is gratifying to be able to record that the Academy's contention has been recognized (in fact tho not in frazing) by most of the medical practice acts.

B. To study the factor of medicine in social problems that the horizon of medicine be broadened, and its efficiency increast in problems investigated.

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*President*—Dr. Woods Hutchinson, New York City.

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*Vice-presidents*—Dr. Reuben Peterson, Ann Arbor, Mich.
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The Academy correspondence may be sent either to the Secretary, at Pittsburgh, or to the Business office at Easton. It will expedite replies if correspondence regarding the publications of the Academy, finances, payment of dues and other items of a business nature be sent to the Easton office, and the other correspondence to Dr. Grayson.

*Prodesse civibus.*

# AMERICAN ACADEMY OF MEDICINE.

(Specializing in Medical Sociology.)

Organized 1876. Incorporated 1913.

## PROGRAM OF THE FORTY-FIRST ANNUAL MEETING, HOTEL STATLER, DETROIT, FRIDAY, JUNE 9 to MONDAY, JUNE 12, 1916.

Unless otherwise stated, the sessions will be held in Henry II Room.

## NOTA BENE.

Please register, everybody: visitors as well as members.

As there is no registration fee, it is hoped that every visitor will comply with this request.

Members can pay their annual dues at the Registration table if they so desire. They can also purchase their tickets for the dinner on Saturday evening.

The Registration Clerk will also sell the Academy button (to members only), receive subscriptions for the JOURNAL OF SOCIOLOGIC MEDICINE, and orders for the other publications of the Academy.

### AS TO PAPERS AND THEIR DISCUSSION.

The rule of the Academy allows TWENTY minutes for reading a paper, TEN minutes for the opening and the closing of the discussion, and FIVE minutes to each speaker in the discussion.

When rising to take part in discussion, give your name and place of residence and wait until the chairman repeats it to the stenografer.

The by-laws provide that "All motions and resolutions, excepting those which relate to ordinary and routine business, shall be referred to the Council without debate. Unless otherwise instructed by the Academy, the Council shall report the resolution at the next executiv session following the introduction of the resolution."

## PROGRAM.

Friday, June 9.

10.00 A.M. Meeting of Council.

(*The Council will hold its subsequent meetings by motion.*)

12.00 M. Meeting of the Academy (Executiv session).

1. Call to order by President Hutchinson.
2. Introduction of President-elect Hare.
3. Report of Committee on Local Arrangements. Dr. Guy L. Kiefer, Chairman.
4. Report of Committee on Program. Dr. J. L. Heffron, chairman.
5. Presentation of the Minutes.
6. Annual report of the Council.
7. Election of Fellows and Associate members.
8. Appointment of committees.
9. Report of the Treasurer.
10. Reports of committees.
11. New Business.

2.00 P.M. Meeting of the Academy (Open session).

TOPIC FOR DISCUSSION: "*Legislation and Medicine.*"

A. The Relation of Legislation to the Practice of Medicine.

I. Legislation Affecting the Entrance upon the Practice of Medicine.

1. (1) "Requirements Preliminary to the Study of Medicine and the Curriculum," N. P. Colwell, M.D., Chicago, Secretary to the Council on Education of the American Medical Association. (*To be read by title.*)
2. (2) "Examinations for License to Practise and Hospital Internship." John M. Baldy, M.D., Philadelphia, President of the Bureau of Medical Education and Licensure of the State of Pennsylvania. (*To be read by title.*)

II. Legislation Affecting the Status and Duties of Physicians.

1. (3) "Legislation Creating Civil Positions for Physicians." John B. McAlister, M.D., Harrisburg, President of the State Medical Society of Pennsylvania.
   Discussion.
2. (4) "Legislation Making Certain Duties Compulsory." John Van Duyn, M.D., Syracuse, Professor of the History of Medicine, Syracuse University. (*To be read by title.*)

3. Legislation Affecting the Physician's Recompense.
   (*a*). (5) "Social Insurance against Accidents (Workmen's Compensation Laws)." Frederick L. Van Sickle, M.D., Olyphant, Pa.
   (*b*). (6) "Social Insurance against Sickness." John B. Andrews, Ph.D., New York, Secretary to the American Association for Labor Legislation.
   (*c*). (7) "Social Insurance against Unemployment." Hon. Rufus M. Potts, Springfield, Ill., Superintendent, Department of Insurance of Illinois.
   (*d*). (8) "The Relation of Medical Benefits to Existing Health Agencies." B. S. Warren, M.D., Washington, Surgeon U. S. P. H. S.

   Discussion of papers (*a*) to (*d*) to be opened by Hon. James V. Cunningham, Commissioner of Labor, State of Michigan; and Robert B. Harkness, M.D., Houghton, Mich.

8.00 P.M. Meeting of the Academy (Open session).

The President's Address. George A. Hare, M.D., Fresno, Calif.

The Annual Address: "Prison Reform." Hon. Thomas Mott Osborne, L.H.D., New York.

Saturday, June 10.

9.30 A.M. Meeting of the Academy (Executiv session).

Report of Council.
Business suggested by the report.
Unfinisht Business.
New Business.

10.00 A.M. Meeting of the Academy (Open session).

*Note.—The Academy will take recess for luncheon at its convenience.*

B. The Relation of the Science of Medicine to Legislativ Enactment.

I. 1. (9) "The State Sanitary Code." Herman M. Biggs, M.D., New York, Commissioner of Health, State of New York.

2. (10) "Inter-state Sanitary Regulations." W. G. Rucker, M.D., Washington, Assistant Surgeon-General, U. S. P. H. S.

Discussion of Papers 1 and 2 to be opened by
John L. Burkhart, M.D., Lansing, Health Commissioner, State of Michigan; and William H. Price, M.D., Detroit, Health Officer of Detroit.

II. 1. (11) "The Drink Problem and Legislation." John Koren, Publicist, Boston, Author of the recent *Atlantic Monthly* articles on the "Drink Problem."

2. (12) "Science and the Drink Problem." Vance Thompson, Los Angeles, Author of "Drink and Be Sober."

Discussion of Papers 1 and 2, to be opened by Frank R. Starkey, M.D., Philadelphia.

3. (13) "Legislativ Protection of the People from the Evils of Patent Medicines and Medical Fakirs." F. F. Lawrence, M.D., Columbus, O.

Discussion.

III. Industrial Legislation.

1. (14) "Standards Applicable to Child Labor." Helen L. Sumner, Ph.D., Washington, Assistant Chief of the Children's Bureau, Department of Labor.

Discussion, to be opened by
Anna Herkner, Baltimore, Assistant Chief, Maryland Bureau of Labor Statistics, and May Mitchell, M.D., Chicago.

2. (15) "Women as Wage Earners." Mrs. Florence Kelley, New York, General Secretary, National Consumer's League.

3. (16) "Housing Reform thru Legislation." Lawrence Veiller, New York, Secretary, National Housing Association.

Discussion to be opened by
Albert L. Brockway, Syracuse, President, New York State Association of the American Institute of Architects.

4. (17) "Medicine and the Industries." George M. Price, M.D., New York, Director, Joint Board of Sanitary Control.

Discussion.

IV. Legislation for Care of Exceptional Cases.

1. (18) "The Physically Defectiv." E. O. Otis, M.D., Boston.
2. (19) "Mental Deficiency as a State and Municipal Problem." Hon. Harry Olsen, Chicago, Judge of the Municipal Court.

Discussion of Papers 1 and 2 to be opened by
Charles Bernstein, M.D., Rome, N. Y., Medical Superintendent of the Rome Custodial Asylum.

6.00 P.M. Informal dinner.

*Note.—The price per plate is $3.00. The tickets may be procured at the Registration Table.*

8.00 P.M. Meeting of the Academy (Open session).

3. (20) "The State and the Insane." Richard H. Hutchings, M.D., Ogdensburg, N. Y., Superintendent New York State Hospital.

Discussion.

4. (21) "The Necessity for Medical Examinations of Prisoners at the Time of Trial." Paul Bowers, M.D., Michigan City, Ind. Physician to the Indiana State Penitentiary.

Discussion opened by
Tom M. Williams, M.B., Washington.

Sunday, June 11.

3.00 P.M. FIRST PRESBYTERIAN CHURCH, cor. of Woodward Avenue and Edmund Place.

"*Western Medicine in Eastern Lands.*"

Seventh Annual Conference. L. Duncan Bulkley, M.D., New York, Chairman of committee, presiding.

I. "An Account of the Leper Asylum in Siam." J. W. McKean, M.D., Cheng-Mai, Northern Siam.
II. "Western Medicine in Western Africa." F. R. Senska, M.D., of the Presbyterian West African Mission.

Monday, June 12.

9.00 A.M. Inspection of what Detroit manufacturers are doing to increase social and economic efficiency.

2.00 P.M. Meeting of the Academy (Executiv session).

Report of Council.
Business suggested by report.
Unfinisht business.

Report of Nominating Committee.

Determination of time and place of adjourned meeting in Pennsylvania to elect officers.

Reports of committees.

New business.

Adjournment.

Meeting of the Council.

## MEMORANDA.

The American Academy of Medicine in practice "specialized in Medical Sociology" from its organization in 1876, altho it did not make the definit claim until about ten years ago. At the first, it imposed definit scholastic attainment among its qualifications for admission. When the more progressiv states adopted an educational standard in their requirements for license, fully equivalent to the Academy's standard and exprest in terms fitting to the present educational system, the Academy abandoned the requirement of the first degree as archaic.

Membership in the Academy is divided into three classes:

A. FELLOWS who "shall be liberally educated physicians as interpreted by the rules formulated by the Council and adopted by the Academy." Fellowship is gained by application. Physicians interested in the various topics of social medicine discust by the Academy are invited to make application.

B. ASSOCIATE MEMBERS. While the Academy primarily is an association of physicians, it studies the relations of medicine to society. A comprehensiv appreciation of the various problems cannot be secured without considering the subject from every side. Hence the Academy seeks the coöperation of social workers and others conversant with the subjects. It offers to such the Associate membership which gives the privilege of the floor in discussion and of serving on committees. There is no financial obligation attendant upon Associate membership.

C. HONORARY MEMBERS.

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"The Teaching of Social Ethics and Its Relation to the Conservation of the Child." By Winfield Scott Hall, M.D., Ph.D., Medical Department, Northwestern University.

"Western Medicine in Eastern Lands," as told by five medical missionaries.

"Women in Industry in the United States." By James H. McBride, M.D., Pasadena, Cal.

"The Relation of the Medical Profession to the Workmen's Compensation Acts in the United States." By Frederick L. VanSickle, M.D., Olyphant, Pa.

"Western Medicine in Eastern Lands," as told by six medical missionaries. Second series.

Any of these publications will be sent from the Business Office of the Academy, 52 N. 4th St., Easton, Pa., upon receipt of the price, or orders will be received at the registration table.

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# The Journal
OF
# Sociologic Medicine

Continuing the Bulletin of the American Academy of Medicine

Publisht Bi-monthly by the American Academy of Medicine, Easton, Pa.

VOL. XVII. ISSUED JUNE, 1916. NO. 3.

THE AMERICAN ACADEMY OF MEDICINE is not responsible for the sentiments exprest in any paper or article publisht in the JOURNAL.

## LEADING ARTICLES.

### THE PHYSICIAN'S COMPENSATION.

The American Association for Labor Legislation, in a recently distributed news item, announces that the Social Insurance Committee of the American Medical Association, under the Chairmanship of Prof. Alexander Lambert, has opened permanent headquarters in the building which contains the offices of the Association for Labor Legislation and that Dr. I. M. Rubinow has resigned his position as Chief Statistician of the Ocean Accident and Guarantee Corporation in order to become the Secretary of the Committee. This is another commendable activity undertaken by the American Medical Association and is in part an answer to the captious critics as to the necessity of the Association requiring as large an income as it does. Investigations of this nature require the expenditure of money and it is a good thing for the medical profession that the Association has a treasury amply able to finance such activities.

Dr. Rubinow, "When askt what terms for medical service laid down in legislativ proposals the American Medical Association might accept," said, "'All detailed provisions relating to medical service were left open in the bills introduced this year by the American Association for Labor Legislation for it was thought that the best course was to secure initiativ on these lines from the great body of medical men themselves. So that we do not organize while in the dark about essential facts we are planning to make an extensiv inquiry into the economic position of the medical profession—a subject about which many conflicting statements are made. Our aim is to bring the best results of medical research and practice to the care of the workers' health while guarding the legitimate interests of the medical profession.'" This eufonistic and optimistic expression concerning the proposed act introduced in the legislatures of several states during the past winter is not shared by all medical men who are concerning themselves regarding this legislation. Thus, Dr. O. V. Huffman, at the Annual banquet of the Kings County Hospital Alumni Association, held in Brooklyn on the 26th of February, 1916, apropos to the subject of compulsory sickness insurance, said:[1]

> A serious situation in regard to the economics of medical practice is at hand; and it is only by intelligent and united effort that we can hope to right matters. Already in eleven European countries compulsory sickness insurance has been introduced and at the present moment there is a bill before our state legislature to provide sickness insurance for all wage earners. This bill has imported the bad features of both the British and the German plans. It fails to provide adequate compensation for medical services and leaves this question in a muddle between the State Official and the Insurance Companies, and, if it were put in operation, it would not improve the public welfare or the medical profession any more than if cheap lodge practice should become the general thing. This subject of compulsory sickness insurance is a very big one and I believe the only way in which we can see it best is to divest ourselves, for the moment, of all our time fostered ideas of how medicine should be practiced on its economic side.

We can very readily see that the Association for Labor Legislation, remembering the snarl growing out of the British Act, might be anxious to escape a similar experience in this country and refrain from incorporating details regarding medical compensation in the proposed act. Endeavoring to escape Scylla, it fell upon Charybdis as noted in Dr. Huffman's criticism. To one outside it seems that the cart is placed before the horse, that it would have been better for this Committee of the American Medical Association to have made its research and publisht its conclusions and then have provided a bill at once satisfactory to all parties concerned.

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[1] *Long Island Medical Journal*, April, 1916.

Social insurance seems to include a fourfold covenant and the rights of each party should be carefully conserved in the preparation of legislation concerning it. There is, primarily, the welfare of the party to be insured. That has been lookt after with care and particularity in the model bill. Then there are the interests of the employer. They, too, have been lookt after, altho the benefits to be derived by him are secured remotely rather than directly. Should the working out of the act be a health-preserving measure, then he will be repaid his proportion of expenses by services less interrupted by sickness on the part of his employee. The third party interested is the state or the public and the demand upon the public treasury to supply a part of the insurance to be received by the wage earner is urged on the score of economy. It will be less expensiv to contribute thus to an insurance fund than to support hospitals, almshouses, etc., to care for those falling by the way unable to care for themselves. A cynical criticism on this statement would be that at the last analysis the state's portion is a distribution of the poor fund. And the fourth party, is the physician for whom "all detailed provisions relating to medical service were left open." Would it not have been at least courteous to the medical profession to have held the bill until some of these details could have been formulated?

The model insurance bill as now presented to the legislatures should be opposed by the medical profession with all the power at its disposal, not based upon the merits or demerits of social insurance but upon the failure of the proposed act to provide safeguards for the compensation of the medical man. To urge the passage of the bill as it is now, upon the promises of future modification relating to the recompense for medical services, may prove a *ignis fatuus*, not that the promoters of the act do not desire physicians to be properly compensated but legislators do not always follow the suggestions of the promoters of the act.

Then, too, the hearty co-operation of the profession should be given this Committee in its study. It has a big subject before it for investigation and one that will require the hearty co-operation of the bulk of the medical profession. The day is coming soon when the compensation of the individual physician by the individual patient will be the exception rather than the rule and some form of co-operativ practice will guide the compensation of the majority of the physicians of the land. Changes of this sort cannot help but work hardship to a degree but the degree of that hardship can be regulated by wise study of the subject and a willing acquiescence in the new conditions which require new methods. Only let us hasten slowly and insist, if insistence be possible, that no law be placed upon the statute books that does not properly conserv all the parties, physicians included.

CHARLES MCINTIRE.

### PHYSICIANS AND MILITARY PREPAREDNESS.

Probably most of the Fellows of the American Academy of Medicine believe in military preparedness (or peace insurance as it has been called). As physicians, what is their duty in the matter?

Medical men in the army may not have to endure the forced marches and other hardships of the soldier, nor possess their marksmanship and other qualifications. Their training lies in another direction, but they must be able to stand the hardships of an activ practice, and times may arise in war when their energies are taxt to the utmost. Army surgeons (meaning those who do the actual surgery) and the physicians who attend to the routine ills of soldiers and look after the sanitary condition of camps and hospitals, should be the leading medical men of the country. The medical preparedness of this country is nothing to boast of, but physicians should be among the readiest to prepare themselves to serve their country, in fact the medical calling is popularly supposed to fit a man to serve in the army.

It is now well understood how useless untrained men would be in the time of actual war. This applies also to the physicians and surgeons, for much has to be learned about army discipline and rations, camp sanitation, and the management of stationary and movable hospitals. The average surgeon would not be prepared to deal with the horrible wounds inflicted by shrapnel and grenades. The medical and surgical problems brought up by trench life, liquid fire, poisonous gases, wounds from explosives, etc., are little understood by physicians in civil life, and yet must be thoroly studied, if the medical profession in this country expects to do its part in this movement. Operations and dressings are done often under the most adverse circumstances, and resourcefulness must often take the place of the preparation of civilized life.

The field of an army's work may be divided into three parts, the mobilization camps, the line of communication, and the front.

Doctors from civil life will almost always see duty in the first mentioned zone, and here their life and practice is adjusted to military conditions, the care of the healthy army (preventiv medicine) and the care of the sick and wounded. In all camps vigilant watch must be kept over the water supply and the system of waste disposal; frequent inspection of such matters must be made by the medical officers. Proper arrangements must be made for the personal cleanliness of the troops; modern warfare shows how this makes for efficiency. Communicable diseases must be watcht out for and checkt; the sick and wounded must be cared for at all times by the surgeons, and only trained men can deal with their transportation, especially during and after engagements when immense numbers are wounded and dying.

It is in the front that the quickest and probably the most exacting work of the physician is required. The wounded are gathered as speedily as possible into the field hospitals and as quickly hurried to the evacuation hospitals (or casualty stations as the English now call them), and then to more permanent hospitals when necessary. Medical officers have much to do with the managing of these hospitals and arranging for suitable food, and physicians know how important proper food and shelter are to sick and wounded men.

Unfortunately our army as now constituted has not the number of medical men it should have, and one of our duties as men interested in our country's welfare is to urge provision for the full number of properly trained army surgeons.

The prompt and proper care of the wounded is one of the greatest problems of modern warfare, and the greatest opportunity is afforded for medical workers to prevent unnecessary suffering and death. Tales are reaching us of the number left wounded and dying for days on the battlefields of Europe. This we know is one of the horrors of war, but to minimize these conditions as much as possible is one of the privileges of the army surgeon.

T. W. Grayson.

# THE DISEASE CARRIER ON TRAIN AND STEAMBOAT.[1]

By **Wilbur A. Sawyer, M.D.**, Director of the Hygienic Laboratory of the California State Board of Health, Berkeley.

The traveler runs a greater risk of contracting disease than does the man who stays at home. He enters a large number of communities with varied climates, and is apt to come into contact with acute cases of contagious disease, with chronic disease-carriers, and with disease-bearing insects. In this way he is likely to be exposed to diseases against which he has acquired no specific immunity, as he has had no experience with them at home.

Infections taking place on trains and steamboats, while secondary in number to infections in the communities visited, are nevertheless deserving of special consideration. A part of these infections are traceable to disease-carriers—persons who are healthy but nevertheless harbor and discharge germs capable of producing disease.

In certain respects the disease-carriers on railroads and steamboats are more dangerous than if they were not traveling, altho this increase in danger is to a degree offset by sanitary supervision usually exceeding that exercised by health officers at the carriers' homes. The carriers, when traveling, come into contact, often under conditions of crowding, with people going to many localities. The persons infected by such carriers introduce the disease into their widely separated communities. Moreover the carrier who is traveling is less likely to be discovered and controlled than the one who stays at home, because his victims are widely scattered and have little notion as to the source of their infection. Attention is not called to him by recurring cases of the disease in his neighborhood.

The diphtheria carrier is our best known representativ of those carriers who distribute infectious germs in the secretions of their noses and mouths. On both trains and ships the limited space increases contact between passengers. Necessarily, the passengers, one after another, in rapid succession, handle fixtures, such as doorknobs and hand-rails, and thus make opportunity for the transfer of infection from hand to hand and then to mouth. They often cough and sneeze in close proximity to each other. Before the common cup was abolisht on interstate carriers, it furnisht an almost direct method for the transfer of diphtheria, common colds, and the like.

---

[1] Read at the 40th Annual Meeting of the American Academy of Medicine, San Francisco, June 28, 1915

Instances are not infrequent in which people have developt diphtheria at the close of a railway journey in which they did not knowingly come into contact with a sick person. Some of these persons were undoubtedly infected by carriers among their fellow passengers.

That dangerous carriers travel in considerable numbers cannot be doubted. A proved instance of a carrier of virulent diphtheria bacilli traveling by train and boat occurred recently in California. A school-girl who had past thru an attack of diphtheria was releast from quarantine after a single negativ culture, instead of the two required by the State Board of Health, and was allowed immediately to travel by railroad and boat to her home at the lighthouse on the Farallone Islands, which are situated in the Pacific Ocean about thirty miles west from San Francisco. Within a week her brother contracted a fatal attack of diphtheria and soon afterward examinations showed that two of the thirteen persons on the island had become carriers, and that the girl who brought the disease to this isolated community still had diphtheria bacilli in her throat. If any persons were infected by her during her trip to her home, it is not likely that they would have any idea as to the source of their infection. Had it not been for the fatal case at the end of her journey her carrier state would have gone unrecognized.

Diphtheria carriers played an important part in an epidemic of diphtheria on the United States Steamship Buffalo in 1903.[1] The conditions were favorable for an outbreak because the ship was crowded, and there was, therefore, unusual opportunity for contact infection. The epidemic originated from an unknown source, probably from a carrier among men recently taken on board for training. Among 750 men there were 137 cases, 18 per cent. During the epidemic it was found that 14 per cent. of the well persons were carriers. The outbreak was permanently ended by leaving on shore all persons who persistently gave positiv cultures.

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[1] Harmon, G. E. H.: Report of an Epidemic of Diphtheria on Board of the U. S. S. S. Buffalo, report of the Surgeon-General, U. S. Navy, 1903, pp. 217–222.

In epidemic cerebrospinal meningitis we have a disease which is spread largely by healthy carriers who harbor the germs in their noses and mouths. Such conditions as would favor the spread of diphtheria would also increase the opportunity for outbreaks of cerebrospinal meningitis. We have an example of an epidemic of meningitis on shipboard in the experience of the United States Steamship Minneapolis.[1] In 1903 the disease was in all probability introduced into the ship either by a man in the incubation period or by a chronic carrier. The ship was unusually crowded. There were 1450 men on board while the normal complement was 500 men. Under these conditions an outbreak of 23 cases occurred.

In cholera, in dysentery (bacillary and amebic) and in typhoid fever we have three diseases which may be spread by carriers. In all three the infectious agent is usually given off in the feces and infects other persons thru the pollution of food or water.

According to Pannenborg[2] contact is a common method of infection with dysentery on shipboard. He cites four instances in which outbreaks of dysentery on German war-vessels could be explained only on the supposition that they originated from carriers. In tropical harbors, flies may perform an important part in conveying infectious material to food. If carriers have access to the water supply there is danger that it will become polluted and will cause an outbreak of dysentery.

The danger from cholera in the United States at the present time depends entirely on the carriers who cross the ocean in ships and infect persons en route and after landing. Fortunately we are being successfully protected against this menace by an efficient system whereby immigrants are kept under observation before they leave cholera-infected ports, and their feces are examined bacteriologically before they are allowed to land in the United States. In June, 1911, prior to the order of the Treasury Department requiring these bacteriologic examinations, a few carriers gained entrance to the United States, but luckily started no epidemics. The danger from cholera carriers on shipboard was shown by the experience of ships arriving at the port of New York between June 13 and August 18, 1911.[1] Sixteen cases of cholera had developt on these ships while they were at sea, fifteen more occurred during detention in quarantin, and three after release. Most of these cases were due to carriers among passengers and crew. The order requiring bacteriologic examination of the feces of immigrants from cholera-infected ports resulted in the discovery of thirty-one carriers on ships arriving in New York from July to November, 1911. Only four gave histories of cholera-like ailments. Two were from ships on which there had been no recognized cases of cholera during the voyage, and at least one of these men must have been a carrier before embarking.

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[1] Stokes, C. F.: Report on Epidemic of Cerebrospinal Meningitis, U. S. S. S. Minneapolis, report of the Surgeon-General, U. S. Navy, 1903, pp. 229–234.

[2] Pannenborg, A. E.: Die Gefahr der Bazillenträger und Dauerausscheider an Bord. Archiv. für Schiffs-und Tropen-Hygiene, 1915, Vol. 19, Nos. 1 and 2, pp. 7–26 and 33–66.

The danger from cholera-carriers is greatly reduced by the short duration of the carrier state—seldom more than two months. The stools of cholera cases are usually free from the spirilla in twelve to fourteen days, and carriers who have not had the disease are in most cases soon rid of their infection.

All the historic epidemics of cholera have spread along the lines of travel, along the caravan routes across the desert, along the trading highways of the ocean, along the lines of march of armies. It seems to be a disease in the spread of which travel is especially involved. Cholera epidemics, when once under control, do not start up again until the disease is brought from another country by travelers. Carriers of long duration are so rare that they, alone, do not keep the disease alive in a community. Nevertheless the carrier state is sometimes of long enuf duration to permit the carrier to remain infectious during a voyage across the ocean.

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[1] Craster, Chas. V.: Ship-borne Cholera. *Jour. American Medical Assoc.*, Dec. 20 1913, LXI, 2211. Creel, R. H.: Method Employed at New York Quarantin for the Detection of Cholera Carriers. *Jour. Am. Public Health Assoc.*, Dec., 1911, I, 899.

Within the United States typhoid carriers are common, and some of them are very dangerous. The number of these carriers is being kept up by constant accessions from those communities which fail to apply the well-known principles in the prevention of this disease. Every city which permits conditions to continue which produce a high typhoid rate is responsible for an annual output of typhoid carriers, some of whom will travel to more meritorious communities and help keep up the residual typhoid fever there. As passengers or employees on railroads and ships these carriers will also be sources of danger.

The number of typhoid carriers produced is a fairly definit proportion of the total number of cases and therefore every precaution to reduce the typhoid rate will at the same time cause a diminution in the number of carriers. According to Prigges[1] five per cent. of cases of typhoid fever remain carriers, and there are three carriers who have not past thru a recognized attack of typhoid fever for every seven who have. On this basis we reach the conclusion that approximately seven carriers are produced for every one hundred cases which are allowed to occur. Fortunately some of the carriers clear up and many do not infect other persons.

The typhoid carrier, as a passenger on a train, is not specially dangerous, but a carrier among the waiters or cooks on a dining car might infect the food of many people. Here are found the same conditions for easy transfer of disease which exist in a public restaurant. The danger of the infection of drinking water by carriers is being greatly diminisht since the handling of ice and the cleaning of water containers, and the separation of the ice from the drinking water have received so much attention in the regulations of the United States Treasury Department and the rules of the railroads.

On ships the typhoid carrier is more dangerous. The passengers live together, for a more or less extended time, under conditions of close contact similar to those in a crowded house. Carriers among cooks and waiters would have their opportunities for infecting food, and the stewards and stewardesses, if carriers, would be likely to infect the passengers to whom they brought food.

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[1] Prigges, quoted by Müller, P. T.: Vorlesungen über Allgemeine Epidemiologie, 1914, p. 9.

With all these possibilities, the number of outbreaks of typhoid fever traced to carriers on trains, or ships is small and much infection is undoubtedly prevented by the supervision of sanitary arrangements by railroad and steamship companies and health officials. Pannenborg[1] has collected reports of typhoid fever outbreaks, due to carriers, on three war-vessels—one Japanese, and two German.

While sanitary precautions to a degree prevent the spread of disease on interstate passenger steamers, the conditions on some of the intrastate lumber and freight boats are ideal for the spread of typhoid fever from one member of the crew to the others. An example is furnisht by a carrier in the crew of a lumber steamer sailing from Humboldt County to San Francisco.[2] An investigation by the California State Board of Health showed that this carrier, altho he had nothing to do with the preparation or serving of food, had spread the infection to 27 sailors and officers, four of whom had died. Twenty-six of these infections took place during a stay of three years and seven months on one vessel which carried only 22 men. The conditions on board gave opportunity for the transfer of infection in the crowded forecastle, and in the dirty water closet, but especially by means of a cask for drinking water. This cask was filled with water in port, and during the voyage the men dipt drinking water from it with a common cup, frequently wetting their hands in the process. Under this arrangement pollution of the water was unavoidable.

This carrier was placed under quarantine at the Marine Hospital in San Francisco and was studied and treated by officers of the United States Public Health Service with a view to making it safe for him to return to his trade. At the end of seven months he was releast on parole because the typhoid bacillus had not been found in his feces for four months. He found work on a lumber vessel and shortly afterward infected three sailors, one of whom died. An investigation by the officers of the United States Public Health service showed that this ship, like the other one, had a drinking cask into which the men dipt a common cup, wetting their hands as they did so. Conditions like these would be serious even in the absence of an unusually dangerous carrier like the one reported. The drinking water supply on board a ship should be in a closed container to avoid contamination and should be drawn thru a faucet.

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[1] See second foot-note on p. 133.

[2] Sawyer, W. A.: A Typhoid Carrier on Shipboard. *Jour. Am. Med. Assoc.*, May 4, 1912, Vol. LVIII, p. 1336.

### PRECAUTIONS AGAINST INFECTION FROM CARRIERS.

The danger from carriers on railroads and steamboats can be reduced by diminishing the opportunity for transfer of infection from one person to another and by detecting and controlling the more dangerous carriers.

Great advances have already been made in diminishing the opportunity for the transfer of infection to passengers from other passengers or employees. The interstate quarantine regulations promulgated by the United States Treasury Department forbid the providing, by common carriers, of any drinking cup or glass for common use in cars, ships, or depots. The individual paper cup on trains and the bubbling fountain in stations have taken the place of the common drinking glass which used to furnish such an obvious opportunity for transferring germs from the mouths of carriers to those of well people. The interstate quarantine regulations forbid also the furnishing, by common carriers, of any towel for the use of more than one person, thus decreasing the danger from carriers. Drinking water is protected from the danger of contamination by carriers, especially typhoid carriers among employees, by the regulation that ice shall be handled in such manner as to prevent its becoming contaminated with disease organisms. The railroad companies have their own regulations regarding special buckets and carts for ice and the use of ice tongs and rubber gloves, all designed to avoid the touching of ice with hands and to prevent clothing from coming in contact with it.

The danger of the less immediate contacts is diminisht by the rules of the railroad companies regarding the cleansing of cars, the changing of the linen covers and head rests, and the cleaning and disinfecting of toilet rooms.

On passenger ships engaged in interstate traffic, precautions similar to those of the railroad companies are being taken. It is in the coastwise steamers which do not carry passengers and are not interstate carriers that we find conditions very favorable to the transfer of infection from carriers to other members of the crew. On these ships, the storage of water in open casks, accessible to the crew, the use of the common drinking cup, the crowding of the forecastle, and the use of insanitary toilets are sometimes still found and should be corrected.

The best of sanitary arrangements would not entirely prevent the danger from carriers on trains and boats. It is necessary that the more dangerous carriers should not engage in certain occupations. Greatest care must be taken to exclude the typhoid carrier from service in the kitchen or dining room of steamboat or train. The Southern Pacific Company requires that all applicants for appointment to positions on trains or in stations shall be examined physically when admitted to the service and applicants found to be suffering from any disease that would make their employment in that service inadvisable are rejected. With cooks and waiters there is additional provision for re-examination on suspicion that they may be suffering from a disease which would make them dangerous to the traveling public. How far these examinations protect against the employment of carriers depends largely on the ability of the examining physician to get at the facts, in the carrier's past history, which would lead to suspicion of his condition. Laboratory tests could then be made, but even in the absence of laboratory proof no person with a very suspicious history should be employed in a position where a carrier would be dangerous, because many carriers are intermittent in the discharge of their disease germs.

The protection against carriers depends to a large extent on co-operation between health departments in detecting and keeping under surveillance dangerous carriers. All outbreaks of communicable disease should be investigated. If carriers are discovered they should at least be kept from engaging in occupations in which they would be specially dangerous. If a carrier moves away from the jurisdiction of the local health officer, the health officer at his point of destination should be officially notified so that he will be responsible. In this way the danger from carriers both on and off boats and trains would be diminisht.

# THE CONTROL OF TRAFFIC SEWAGE.[1]

By **Leslie C. Frank**, Sanitary Engineer, United States Public Health Service, Washington, D. C.

## INTRODUCTION.

The possibility that traffic sewage, such as sewage from vessels and railway coaches, might require treatment for the protection of the public health has been under consideration within recent years by various state and municipal authorities, and is now being studied by the United States Public Health Service and by the International Joint Commission.

Naturally the public interests, exprest thru the above bodies, desire that such dangers as exist due to this cause be removed as promptly as possible by proper remedies. Naturally also, the traffic interests desire that it be reasonably demonstrated: First, that there is real danger due to the present practices of discharging traffic sewage, and second, that any remedy they are askt to apply be practicable, efficient, and within economic limits.

Both of these viewpoints are reasonable and just. It is probably safe to assume that while some of the smaller traffic interests may be actuated by less public-spirited motives the vast majority of the traffic interests view the question with the broadmindedness above indicated and are willing to apply any correctiv measure which may be shown to be reasonably necessary and economically possible.

It is the purpose of the present paper to set forth some of the reasons why a better control of traffic sewage is desirable and necessary, as well as some of the methods of control which have been attempted or suggested, with their relativ advantages and disadvantages.

## THE NEED FOR THE CONTROL OF SEWAGE FROM FRESH WATER VESSELS.

The present practice on most fresh water vessels is to discharge sewage from the toilets directly overboard. In some cases small holder or storage tanks have been installed, but in general the discharge of sewage is not controlled.

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[1] Read at the 40th Annual Meeting of the American Academy of Medicine, San Francisco, June 28, 1915.

The danger from this present practice lies in the relation between such non-controlled discharge of sewage, the drinking water supplies of other vessels, and the drinking water supplies of communities whose intakes lie within the bacterial zone of influence of the traffic lanes.

The drinking water supply of one vessel is related to the sewage discharge of another because vessels between two given ports generally travel in very well defined lanes, since naturally the logical tendency is to select the shortest practicable route. Such traffic lanes between important centers are often heavily congested, so that a number of steamers may pass the same spot within a few minutes. In view of this it is hardly possible to doubt that the drinking water intake of one steamer may often be exposed to local zones of pollution from another steamer.

The above mentioned traffic lanes pass close by a number of drinking water intakes of large cities, and it is just as little subject to doubt that disease may be transmitted in this way as that it may be transmitted from vessel to vessel. Chicago is one of the cities suffering in this regard, and its authorities have become sufficiently convinced of the danger to require vessels entering or leaving that city to install carrying devices "so that no sewage may be discharged within a certain distance of the intakes, or while in the harbor."[1] The City of Buffalo also recognizes this difficulty and its Health Department has made a request that all toilets must be lockt and remain lockt and no sewage be discharged from the entering or leaving vessels within two miles of the intake pipe of the Buffalo City Water System.[2]

The traffic interests recognize the above stated dangers to the extent that some of them have expresst themselves as being willing to try any reasonable method which may be suggested. At a hearing before the International Joint Commission on November 10, 1914, in Detroit, Col. Wm. Livingstone, President of the Lake Carriers Association, said:

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[1] de Valin: U. S. Public Health Service Reports.

[2] Appendix, p 383, Progress Report 1–16, 1914, International Joint Commission.

> There is nothing that money can buy that is not put on all of our steamers, both bulk freighters and passenger ships, and there is no improvement up-to-date that we do not put on. The question of expense does not cut any figure with us. The only question that comes up in our minds and that decides it is, will the improvement which is added accomplish the purpose aimed at in the most efficient way? This question of sterilization tanks on board boats, while not a new proposition, has never been put into practical use, and so we cannot vouch for it. We will give you one boat, or two boats, or three or four boats, if you so desire, if you want to put a tank on board and test it out. We will help you in every possible way. * * * Clearly understand that we want to co-operate with you and that we are not opposing anything that is reasonable.

It is evident, therefore, that the public interests recognize the danger of non-controlled discharge of sewage from fresh water vessels, and that the traffic interests are in sympathy with any movement looking toward improved public health conditions.

### THE NEED OF THE CONTROL OF SEWAGE FROM RAILWAY COACHES.

The need for controlling sewage discharge from railway coaches has been recognized by many of the state and municipal authorities. This need is due to the relation between the discharge of the train sewage and the possible pollution thereby of drinking water supplies within the zone of bacterial influence of the railway roadbeds.

This bacterial zone of influence is determined by two factors, namely, surface drainage and wind action.

Particular attention is paid in modern railway construction to the rapid drainage of the roadbed. Longitudinal and lateral drains are specially designed to carry the surface drainage as rapidly as possible to the nearest watercourse. It is generally acknowledged that it would be extremely hazardous to drink water that had come into contact with fecal matter, even tho the fecal matter had been exposed to the sun and air for days. It can hardly be doubted, therefore, that the discharge of untreated sewage upon railway roadbeds which drain into drinking water areas is extremely dangerous and should be prevented.

The other factor determining the zone of bacterial influence of a railway roadbed is wind action. Drinking water reservoirs which may not be affected by surface drainage from the railway roadbed may nevertheless be within the radius of the wind's carrying capacity. Bits of dried fecal matter or particles of earth impregnated with fecal matter or urine may at any time be blown by the wind into such reservoirs. The case of the reservoir at Lawrence, Kansas, is an illustration. Mr. C. A. Haskins, Engineer of the Kansas State Board of Health, states that pollution of the water of the Lawrence Reservoir could be traced to no other Course than the above mentioned carrying of polluted dust by wind action.

Recognition of the above dangers is indicated on the part of the public interests by the formulation of remedial measures such as the compulsory locking of toilet doors, and on the part of the railway interests by sincere attempts to apply these measures.

## ATTEMPTED OR SUGGESTED METHODS FOR THE CONTROL OF TRAFFIC SEWAGE.

Roughly there are six different methods of control which have been attempted or which suggest themselves.

The first of these methods is not to attempt to control the sewage as such but instead to purify that part of the affected water supplies which is actually used for drinking water.

There are several important objections to this method, one being that it would be apt to impose a very unjust burden upon the users of the affected water supplies, and the other being that it deliberately neglects the "factor of safety" idea.

In regard to the first objection, the number of persons taking passage during the season 1906, according to the United States Census Reports, was 14,000,000. Assume that the passenger season embraced 120 days. The average number of persons traveling on the Great Lakes every day during the season, therefore, may be assumed roughly to be 14,000,000 ÷ 120 = 117,000. In fact the average continuous population is much less than this because the average trip length is less than one day. It is believed to be a safe assumption that a good many more than 4,000,000 people depend for their drinking water supplies upon the waters of the Greak Lakes, and that they have their intakes located in such a way that the possibility of occasional pollution from vessel sewage cannot be ignored. Manifestly, then, it would be unfair for 117,000 people to place the burden of water purification upon 4,000,000 people. The fact that many of the above 4,000,000 empty their own sewage untreated into these same Lake waters is not pertinent here. The necessity and duty of purifying *their* wastes is also under consideration.

The same argument will hold for railway traffic and the population which the sewage of that railway traffic affects.

Finally, consider for the moment that the shore population *does* purify its drinking water by means of filters. The probability still remains that the pollution from steamers is likely to appear occasionally in high concentrations at the city water intakes and cause momentary intensities of pollution beyond the limits of municipal water filters. So that even if the shore population did accept the whole burden, and purified its drinking water by means of the most modern water filters, they could not be sure they were being protected against the above hazard.

The second objection to method (1) is that it neglects the "factor of safety" idea. For, if the water purification device of any vessel happened to be out of order, polluted water from the traffic lane might at any time be served to the passengers. It would be much better to purify *both* sewage and water and so place the hazard of infection in the second order of possibilities. Of course, any argument of this nature depends upon the possibility of devising methods of water and sewage purification whch are within the limits of economic expenditure.

The second method of traffic sewage control is to keep all toilets lockt while steamers and trains are within danger zones. This method of control has the advantage of being extremely low in cost for the traffic interests, and of being extremely efficacious if thoroly executed.

The objections are two-fold: In the first place, the locking of toilet doors, as will be attested by every traveler, often affords a very serious inconvenience; in the second place, it is extremely doubtful whether the method *can* be thoroly executed. Personal observation of unlockt traffic toilets while passing over drinking water areas has afforded ample reason for this doubt. Mr. C. A.

Haskins, Engineer of the Kansas State Board of Health, makes the following statement:

> In 1913 the Kansas State Board of Health ordered the Missouri, Kansas and Topeka Railway to instruct its trainmen to keep doors of toilets lockt on passenger trains while crossing the drainage area of the Parsons, Kansas, water-supply, so as to safeguard the water against infection from this source. During the period of two years since this order has been in effect many infractions have been noted by representatives of the Board.

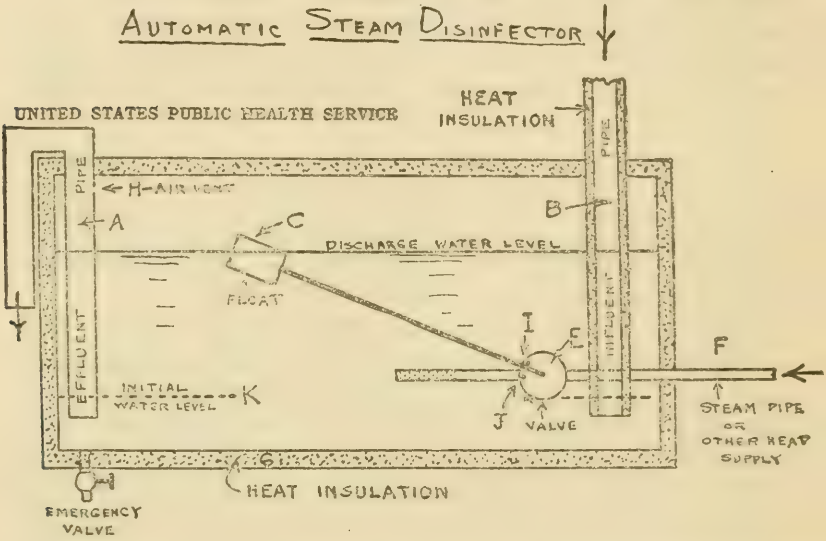
The greater the number of men to whose care is entrusted the execution of a certain duty the greater the likelihood that infractions will occur, unless such infractions create their own remedy. Col. Livingstone, previously referred to, made the following statement before the International Joint Commission on November 10, 1914:

> In the end you have to depend on the men, and all of our men are not saints. * * * I put it to the Commissioner whether it is possible, among 17,000 or 18,000 men, to have all your rules strictly obeyed. I do not care what the penalty may be; I doubt if every rule will be obeyed among any class of men numbering so many. A man knows that if he commits murder he will be hanged, but still some people will commit murder.

The third method of controlling traffic sewage is to provide storage tanks in which the sewage is to be held during passage over danger zones, and discharged by manual operation after the danger zone is past. This method has the undoubted advantage that the toilet doors remain open continuously. It is open to the same objection above noted, however, namely, that its success depends upon the integrity of a large number of employees.

The fourth method is to provide storage tanks as outlined above, and to treat the contents before discharge with chemical disinfectants. This method has the advantage of continuously open toilets and also that discharge of the tanks may be effected anywhere. The principal objection to this method is that ordinary chemical disinfection loses much of its efficiency when it is called upon to treat liquids containing such solids as fecal matter. It is extremely difficult to secure thoro penetration of the chemicals into the interior of the particles, and much time and effort has been spent in attempting to devise methods whereby automatically the organic particles may be sufficiently comminuted before the chemical is applied. So far as is known no practical success has attended these efforts. Of course, chemicals can be used which will entirely consume the organic matter by actual chemical combination, but such a procedure would be obviously expensiv. A second objection is that this method also is dependent upon manual operation.

The fifth method of control is to provide storage tanks as above and to treat the contents by manual operation with steam before discharge. This method possesses the distinct advantage that the disinfection efficiency is dependent upon heat instead of upon chemicals and there is no doubt that heat will penetrate organic solids much more quickly than will disinfectant chemicals. However, it again possesses the distinct disadvantage of being subject to manual operation by many employees.



The sixth method of traffic sewage control is to provide storage tanks for the sewage so equipt that the sewage is both automatically disinfected and automatically discharged by means of steam or other heating element when it has reacht a certain predetermined level in the tank. This method has been described in Reprint No. 247 of the Public Health Service Reports. Briefly, the device consists of a tank as shown in the illustration, with a sewage influent pipe penetrating nearly to the bottom; a discharge pipe having its influent end near the bottom of the tank and rising up thru the tank to a point above it; a float and valve with a lost motion connection; and a steam influent pipe. The operation of the tank is simple. When the sewage has reacht a certain predetermined level the float automatically turns on the steam, which escapes into the sewage thru a number of small holes. All of the heat of the steam, of course, is given up to the sewage, which rapidly approaches the boiling point. As soon as the boiling point is reacht, *but not before*, pressure is developt in the tank and the sewage is forced up and out thru the discharge pipe. When, owing to this discharge, the sewage level in the tank has dropt to a predetermined minimum the float, thru its lost motion connection, turns off the steam and the tank is ready for the next cycle of operation.

There are a number of distinct advantages of method (6):

(*a*) It depends upon heat for its disinfection efficiency, and heat is generally acknowledged, as above noted, to be very thoro in its action.

(*b*) Its action is entirely automatic. This eliminates the uncertainties of manual operation by a large number of employees.

(*c*) If fresh sewage enters the device while it is being discharged, the discharge immediately ceases. There is no danger, therefore, of fresh sewage being carried out untreated. This advantageous feature is due to the fact that as soon as any fresh sewage enters the device its contents are chilled to a temperature at which pressure is impossible. The new mixture must again be brought to the boiling point before further discharge will take place.

(*d*) It permits toilet doors to remain unlockt over drinking water areas.

(*e*) It permits toilet doors to remain unlockt while waiting in stations. This latter has, of course, no public health significance, but it does concern very nearly the comfort of the passengers.

In lieu of locking the toilet doors while standing in stations, the porter has merely to turn off a steam valve penetrating the car floor external to the toilet. The tank can be designed with a sufficient reserv capacity to care for any reasonable period of waiting. The objection will be raised immediately, of course, that the porter may forget to turn on the valve when the train leaves the station. This is true, but forgetfulness of this sort will rapidly create its own remedy. For, at the station stop immediately subsequent to the complete filling of the tank and its consequent dribbling, the fact of the porter's forgetfulness would be made painfully evident by toilet discharges upon the station platform. It should be remembered in this connection that the porter cannot help himself in such an emergency by locking the toilet doors.

The above device is now being experimented with upon a stationary basis in order to secure the maximum simplification of details and to secure data upon steam, consumption and bacterial efficiency. As soon as these studies are completed experimental devices will be placed upon vessels and railway coaches and tested in actual service. It is believed that the cost of operation will be extremely low. Rough preliminary office estimates indicate that the cost of disinfection with the above device should not be over two-tenths of a cent per cubic foot of sewage disinfected. This preliminary estimate is based upon the assumption that one pound of coal in the average modern locomotiv will evaporat six pounds of water, that locomotiv coal costs $1.50 per ton delivered into the locomotiv, and that heat lost by radiation from the device will double the amount of heat otherwise required. This certainly should be more than sufficient allowance for radiation.

Based on the above estimate, sewage disinfection for a railway coach which used ten cubic feet per day for toilet flushing will cost about two cents per day. The cost for steamers will probably be somewhat higher owing to the greater amount of water used per toiler flush. An estimate of five or ten cents per closet per day would seem reasonable. The steamers could of course reduce this considerably by substituting railway toilets for their present equipment.

# THE TRANSPORTATION OF INSECTS, WITH SPECIAL REFERENCE TO DISEASE CARRIERS.[1]

By VERNON L. KELLOGG, Professor of Entomology, Leland Stanford Junior University, Cal.

That historic ship-captain, who, because of some real or fancied slight on the part of the natives of one of the Hawaiian Islands on which he had landed to replenish his water casks, left on shore, with his compliments, as he sailed away, a cask of his old supply swarming with mosquito wrigglers, introduces quite pertinently and exemplifies quite clearly the subject of dangerous insect transportation and distribution.

Whether these wrigglers were larvae of the yellow fever mosquito (*Aedes calopus*) or not, we cannot be sure, for altho *calopus* is abundant on the Islands, it is only one of the eight or nine mosquito species that we know to occur on the Hawaiian Islands. But in some such way it is quite certain that the yellow fever mosquito was introduced into these Islands, as is true also for *Culex fatigans*, the carrier of those minute thread worms, the filariae, that cause elephantiasis, and is also true of the half dozen other mosquito kinds represented in Hawaii. For there were no mosquitoes on the hot flanks of the great volcanoes as they rose from the blue waters of the Pacific in those distant days of the successiv births of the Hawaiian Islands. Both the flora and fauna of these islands had to be brought to them in one way or another. The various means and manners of such bringing are the chief subjects of the familiar "modes of dispersal" and "means of distribution" chapters of the text-books of zoo- and phytogeography. Ocean currents, persisting winds, floating logs, swimming, flight, carriage by long-distance ships or short-distance nativ boats, and the rest; these are the various ways of the over-seas distribution of life. But there are also interesting conditions attending the distribution of animals and plants merely overland. It is our special purpose, for the present few minutes, to scrutiniz and consider those particular ways in which insects, and particularly those insects which have already been proven guilty, or seem plainly suspect, of disseminating human disease, distribute themselves, or get distributed in spite of themselves, both over-seas and over-land.

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[1] Read at the 40th Annual Meeting of the American Academy of Medicine, San Francisco, June 28, 1915.

The yellow fever mosquito is a good insect to begin with. It is a most important insect from the point of view of the man of medicine. For only in lands and regions where it is, is there, or *can* there exist yellow fever. Which, however, is not at all the same as saying that wherever this mosquito is, there is also always yellow fever. Yellow fever, for example, does not exist in the Hawaiian Islands nor in the Samoan Islands, altho the yellow fever mosquito is one of the most abundant of the mosquito kinds occurring in both these island groups. This absence of the disease, altho the disease spreader is present, is only evidence of the fact, familiar to you all, of course, that the yellow fever mosquito, no more than the malarial or the filarial mosquito, manufactures *de novo* the disease it carries. The insect simply collects the causes of the disease, and carries them further.

Yellow fever is caused by the so far undistinguisht and probably invisible but definitely existing sporozoan parasite that we call its germ, just as malaria is carried by the familiar Hemamoeba, or Plasmodium, and elephantiasis and other forms of filiasis by the wriggling little threadworms called filariae. What is needed then in the Hawaiian Islands that there may be yellow fever there, are the yellow fever germs. The insect agent that distributes these germs is ready and waiting, and now that the Panama Canal offers a swift and all tropical, or sub-tropical, journey from the West Indies, where are both the proper germs and the proper mosquito host, to the Pacific islands, where as yet only the proper mosquitoes are, the news ought not to be too long delayed of the first cases of yellow fever in our Pacific Island holdings. What yellow fever might do, if allowed its way at all, among the absolutely non-immun populations of these Islands, can well be imagined.

This possible, not to say probable, passage of the yellow fever germs, in the bodies of yellow fever mosquitoes (or human yellow fever patients), from Havana to Honolulu demands, however, not only means of passage for the infected mosquitoes but a long enuf life of the mosquito and of the germ in it to endure thru the time of the traveling. And this is a condition that is to be taken into account in all study of insect transportation. We are little interested in the transportation of dead insects from one place to another—of insects that die inevitably of old age during the journey,—or of live insects with dead disease germs in them. In the particular case of the yellow fever mosquito, however, we have to do with an insect very fit to be a globe-trotter. It is, of all the mosquitoes, the particular one for which we have perhaps the longest records of adult longevity. It has indeed many records of from 100 to 150 days of life in the winged stage. This length of life is sufficient to enable it to be carried on ship-board half-way around the globe if it can withstand the vicissitudes of temperature and climate, generally, which might attend such a ship.

However, mosquitoes have their special means of withstanding precisely these vicissitudes. In the first place, the adult females of most mosquito kinds can hibernat thru a cold period, and estivate thru a hot one. Also the mosquitoes are enabled to meet different conditions of life and of travel by different adaptations in their different life-stages. As larvae, or wrigglers, mosquitoes can be taken anywhere that fresh or brackish water can be. And while, ordinarily, mosquito larval life is but a few days or weeks in duration, I have kept wrigglers alive and slowly developing thru a period of more than three months. Again, as eggs, mosquitoes have special means of withstanding such conditions as heat and desiccation and new means of rapid and wide dispersal. The eggs of many species are deposited not always on the surface of water as is the more usual case, but on mud or moist soil which may dry and turn to dust and yet not affect the eggs for the worse. For with the coming again of the rains or over-flowing stream these eggs will develop and quickly hatch. Or instead of lying in place as deposited they may be taken up with a bit of mud on the feet of birds come to drink at the drying pool, and be carried to distant places.

Finally, in any consideration of the means of distribution of mosquitoes, we must not leave out of account the flying capacity of the adult. Despite the fact that most mosquitoes tend to dive into protecting foliage or grass when a wind arises, some kinds are known to make flights of from a few to as many as 30 or 40 miles against a wind not too strong. And with the wind it is conceivable that they may attain even longer journeys. The campus of Stanford University lies about $2^1/_2$ miles from the marsh-lined shores of San Francisco Bay, but nevertheless it suffers each year from the invasions of swarms of a mosquito kind that breeds exclusively in the brackish waters of the salt marshes. We have taken specimens of these mosquitoes five or six miles inland on one side of the bay and as many as 15 miles inland on the other. The salt marsh mosquitoes of the New Jersey Coast have been taken for nearly forty miles inland.

I have as yet, spoken of the distribution of no other kinds of insects than mosquitoes.

However, I have been able to illustrate, by examples from the mosquito alone, all the principal categories of the ways of insect dispersal. That is, insects may be distributed by their own capacities for locomotion, as the mosquito by flight, or they may be transported by various natural agents, as the mosquitoes' eggs by birds, or they may be distributed by the individual assistance of man, as the larvae in casks of water carried by wagon, railway or ship. It is, however, the methods of the last category that chiefly account for the rapid and world-wide distribution that so many of the insect carriers and disseminators of human disease have achieved. For in the very nature of the case these insects are necessarily those that live in closest relation to man, either as actual external parasites on his body, as the lice, mites, bedbugs, etc., or as parasites of the domestic animals which he keeps ever with him in his migrations, as the fleas, stable-flies, ticks, etc., or as constant guests of his food stores, as the roaches, or breeders in the offal of his house or stable, as the house flies. All these insects, and they include most of the proven disease-carriers—the most notable exceptions are the mosquitoes and the tsetse flies—are close associates of man and his domestic animals and pets, his house and his stable. So that a study of their transportation largely resolves itself simply into a careful consideration of the special various opportunities which man affords these insects for transportation, thru the constant movements of himself and belongings in migration, colonization and commerce. This study can best be exemplified, perhaps, by the brief consideration of these opportunities or necessities of transportation as revealed in connection with each of the more important disease-carrying insects.

First, then, let us consider the Pediculines, the blood-sucking lice that live as parasites in both immature and adult stages on man and most of his mammal companions. There are three species that, both as young and adult, infest man and only man, and two of them, at least, have been definitely implicated with the spread of typhus fever. Altho the causativ organism of this disease is yet unknown, it is quite certain that the disease is germ-caused, and that the unknown germ can be suckt into the stomachs of lice with the blood of diseased persons and regurgitated again into the blood of other persons. As to the transportation of the lice it is obvious that they can go wherever unclean men go. Cheap lodging houses, night shelters, jails, and wherever unclean men come closely together and disperse again are centers of distribution. Mexico is the special danger region for this country as typhus is always present there—and so are lice.

The bedbug, altho not a permanent parasit of man is yet a permanent guest and companion in his house and on his travels by train and boat. In both immature and adult stages it sucks his blood, as the lice do. It is obvious that its blood-sucking habits and repeated change of human hosts adapt it well to the fatal business of spreading the parasites of germ-caused disease, and as a matter of fact the bedbug is proven guilty or made strongly suspect of spreading by its bites no less than half a dozen serious diseases caused by various bacilli and sporozoa. It is a cosmopolitan insect, and very prolific, having three or four generations a year. It has considerable longevity and in both immature and adult stages can go for long times without food. Adults have been kept alive in a bottle for a year without food. Young have been kept without food from birth to their forty-second day of life. The young and adult live in any safe dark cracks or crevices in the permanent or temporary habitations of man. All these conditions make the transportation of these insects easy. They go, in fact, wherever man goes, resting near him in boat and train births, and in the plush seats of the parlor coach, as well as the wooden or wicker ones of the immigrant car.

Like the bedbugs, the fleas are only temporary parasites of man, not living on his body all the time. In fact they take his blood only as adults and only with special opportunity. For in their immature stages as slender whitish grubs they live on the organic dust of cracks and crevices in houses, dog kennels or cat-baskets, and in the adult period they take blood from hosts of various other animals as well as man, as the dog, cat, rat, etc. But this latter condition gives them a special danger. For they may and do, in certain cases, at least, carry diseases from these other animals to human beings. Bubonic plague is, of course, the chief disease of this type, and it is a disease proved to be disseminated among rats and from rats to man by fleas. Interestingly enuf it is not yet proven that the fleas carrying the plague bacillus directly inoculate the host by piercing its skin and sucking its blood, but by their regurgitations and anal disjecta they distribute the bacilli of the plague on the surface of the body, whence they may find access to an open sore, or can be rubd into the wounds made by scratching. The transportation of fleas in egg and larvae stages can be accomplisht by unclean train or boat, and in the adult stage by the actual migrations of the hosts, or by their artificial dispersal by man. The flea species *Zenopsylla cheopis*, especially associated with the dissemination of the bubonic plague among rats and man in the Orient, was brought years ago to San Francisco (and to every other great seaport of the world). It found a pleasant abiding place with the rats of the American city and is abundantly with us to-day. But that it may distribute plague it must have opportunity to feed on plague-infested rats and of those fortunately we allow now but few to land; and these only by virtue of eluding a very strict preventiv watch. Tin shields on the hawsers that run from ship to wharf, rat-hunting on board ship and various other preventiv means tend to make the transportation of the rat plague flea a difficult one nowadays.

In the ships with the lice, bedbugs and fleas, come the cockroaches. These insects which have not yet been proved to be the incubators of any germ disease, that is, the actual alternat host of any sporozoan parasit whose other host is man,—as the mosquito is for the malarial parasite, for example—have nevertheless been proved to be able to ingest and after twenty-four hours and even longer to eject by regurgitation and defecation the living vibrios of Asiatic cholera, and are among the most indefatigable and abundant ship-travelers known. Good proof of this lies in the fact that the commonest roaches now living in our houses this country over, are not nativ species, but two kinds nativ to Europe and Asia, respectively, namely the small German light brown roach commonly called "croton bug" and the larger dark brown or blackish Asiatic roach known as "black beetle." On the other hand, the still larger best known American species *Periplaneta americana* rules the roost in Mexico and Central America and in many of our Pacific Islands. It is the most numerous roach in Manila. I have known of boats arriving in San Francisco from west coast Central American and Mexican ports on which the men in the forecastle wore gloves at night to save their finger nails and even flesh from being nibbled away by cockroaches. It is indeed the "foksel" of the ships—and also the galley—which are the very seat and center of the ship-transported insects of disease-carrying potentiality. For in the "foksel" not only are closely foregathered men with not too much opportunity for cleanliness, but here are their animal pets, their flea-bitten dog and cat companions. And in the galley are the food and warmth and moisture that the roaches like.

Altho not insects but Arachnids, more closely related to scorpions and spiders than to lice and bedbugs, the mites and ticks must have a few words. For certain ticks have been clearly proved to be disseminators of disease among animals and men. In our country the cattle tick spreads the Texas or splenic fever of cattle, and the Rocky Mountain spotted fever tick carries the spotted fever of human beings in the mountain states of the northwest, while in northern Africa the notorious moubata tick disseminates the fatal African relapsing fever. In addition, certain mites produce by their very presence on and in the skin of man a condition, *scabies*, that may be well be lookt on itself as a disease, while others produce similarly the mange of dogs and a fatal itch in cats. It is almost certain too, that mites will be proved to be carriers of disease germs. The habits of some species adapt them very well for this role.

Both mites and ticks are most readily transported on the bodies of their animal and human hosts, but the capacity of the ticks to go for extraordinarily long periods without food renders them capable of being carried long distances by even the slowest of transporting agents under conditions where no food can be had for weeks or months. Unfed adult ticks have been kept alive by various experimenters for from a year to even three years. Eight species of mites and ticks have been recently determined to be harbord on rats in Egypt and most of these rats are thoro cosmopolitans.

The general relation of house flies to the dissemination of human disease is familiar to you—or perhaps I should better say, the general possibilities of this relation, for as a matter of fact, the actual proved cases of the dissemination in nature of germ-caused disease by flies are as yet not many. But that is only because of the difficulties of the determination. Experimentally it is easily proved that flies can carry about living disease germs, and there is little doubt that typhoid, tuberculosis, cholera, yaws, and other serious human diseases, as well as several serious diseases of domestic animals, are actually disseminated by these insects, altho by no means exclusively so disseminated as yellow fever and malaria are exclusively disseminated by mosquitoes. Indeed the housefly has not yet been proved to be the actual definitiv host (alternat host) of any disease germ.

But it is quite true, as shown by experimental proof, that the germs of all the human diseases I have just specifically named, namely typhoid, tuberculosis, cholera and yaws, can be taken into the stomach of flies and ejected in viable condition for at least two days after feeding. Experiments are under way in various laboratories—a graduate student in my own laboratory has already got some interesting results with the bacilli of tuberculosis—to determine whether or not disease germs ingested by the larvae can persist alive thru the larval and pupal life of the fly and be ejected with the vomit and feces of the adult fly. The tremendous histologic changes during the prepupal and pupal stages, accompanied by the breakdown of the larval alimentary canal and release of the bacilli into the general body cavity, would seem to make such a persistence of the germs in a mere mechanical carrier impossible,—but my student seems to be demonstrating a recovery of live tubercle bacilli from bred flies fed as larvae on bacillus-infected food.

As 90 per cent. of houseflies lay their eggs and live as larvae in horse manure, and as the whole immature life can be past in as few as nine or ten days, under favorable conditions, it is plain that houseflies can be readily transported overland and overseas with horses and can actually multiply during their journey. But in default of horse manure flies will breed in almost any kind of filth and any transported filth can carry the eggs and larvae with it.

The migrations of the adults by flight are undoubtedly limited in extent. Usually flies are not found more than from a quarter to half a mile from a breeding place, but some records of flight reach the figure of five or six miles. But the life of the adult is long enuf, especially in the cases of hibernating individuals, to permit of a wide distribution of artificial transportation of the flies themselves. And as their association, because of their origin, is always a close one with man their travels are easily accomplisht with ever-tràveling man.

The biting stable-flies differ from the houseflies in their possible effectiveness and behavior as disease spreaders by their possession of a piercing beak with which they suck blood. They have thus opportunities for directly inoculating human beings or domestic animals by introducing into the circulation disease germs that have been simply mechanically carried by the beak, or have been swallowed with the blood of previously bitten diseased individuals. For a time, you know, the stable-fly was under grave suspicion in connection with infantile paralysis, but its reputation seems gradually to be clearing of this imputation, at least. And the same is true of its possible relation to pellagra.

However, it is an insect well adapted to carry and inoculate disease. Its favorite breeding place is straw; it can travel where straw travels, and its larval and pupal stage, enduring for from three to six weeks, is long enuf to let it be carried for long distances unperceived. The issuing adult takes blood from domestic animals and human beings. It does not, however, feed on filth, nor frequent malodorous places to any such extent as the housefly, and thus is not so likely to pick up and carry on its feet or body surface the germs of typhoid and other intestinal diseases.

Related to the stable-fly are the notorious tsetse flies of Africa, disseminators of the fatal sleeping sickness of human beings and nagana of stock. But they will probably not trouble us, despite such interesting rumors as found credence a few years ago concerning the bringing of the eggs of the tsetse into this country on the skins of the animals shot by Mr. Roosevelt's famous African expedition! The rumor was, I say, interesting, but more for its revelation of the ingenuity of the hard-prest reporter who invented it, than for its connection with possible fact and hence danger to us. For the tsetse fly lays no eggs. The female gives birth only occasionally to a single living larva almost ready to pupate. It is indeed a curious slow-breeding creature for an insect.

Almost any insect that associates at all closely with man, that sucks his blood or eats his food-stores, or gnaws his furniture, or breeds in his house or stables, is a potential disseminator of germ-caused human disease. And almost any such insect, by virtue of this close human association, is likely to be readily transported by man's own unintentional aid. This is, indeed, not only logically obvious, but observationally proved by the fact that a great majority of these insects are cosmopolitan; they have already gone with man wherever he has gone. They are usually the first insects to appear on an island taken possession of by civilized man; with himself, his goods, and his chattels, he transports disease germs and insect disease germ carriers. It is an old story, and an oft-repeated one. The moral of it is, to look well to the baggage we take about with us. For the transportation and distribution of the disease-carrying insects is chiefly a matter of our own behavior, and, as such, not being primarily an inherited behavior, it can be successfully modified in a direction making toward safety.

## DISCUSSION.

### Dr. Adelaide Brown, San Francisco:

I was askt to speak on Dr. Rucker's paper particularly, and he mentioned the question of education. I think some of the people who need education are the architects. There is a fad in building nowadays which undermines the protection of health, and that is the separation of the toilets from the bath-rooms. I believe in the training of children we have our great possibility for disease protection. In the taking of washstands out of the toilets, you encourage the child's carelessness in omitting the washing of his hands after attending to the calls of nature. Children should be taught also to wash their hands before meals. If these two things could be taught in every family, we would have much less throat infection and typhoid fever. It is easy to train children to become mechanical in such things before entering school.

If he is properly trained before going to school, the child would rather go thirsty than drink out of a public drinking cup. To many the bubbling fountain seems ideal, but the comment of a little child was very illuminating to me. He said, "I would not drink out of the drinking fountain at school because the boys spit in it." It is a toy and the children will play with it.

The proposition in regard to the controlling of sewage on trains and boats, it seems to me, is something that we must certainly come to. During my years of travel the evolution of the protection of large cities has developt, but it has not developt in small towns. The toilets are lockt thru large cities but not thru small towns. The risk might be obviated by a sign "Use toilet only when train is in motion." I think signs are educativ. I saw a sign in London once which read, "Kindly leave this room as you would like to find it." I have had it used in hospitals and playgrounds. It is a good suggestion to people.

With reference to the transportation of cases of typhoid, I heard an experience last year of two friends who went to the Yosemite Valley. A young man was brought down ill with typhoid in the baggage car. One of the friends was a trained nurse, the other a physician. They divided the night between them. There was absolutely nothing possible for the patient's comfort. He was controlled and watcht, but no convenience for his comfort was provided. At the Yosemite end of the trip, they were supposed to have provided a receptacle for defecation and means for washing the nurse's hands after handling the boy. In such a rough trip as that is, along the Merced River, such a receptacle could be easily upset in the freight car and might mean a soiling of the car. I do not see why a stationary toilet could not be put into such a car and fastened to the floor. The nurse should have a sack for linen and supplies, and another sack where she could throw paper to be destroyed and burned.

In California we need emphasis on the fly proposition. In the public schools of the eastern cities they train the children to hunt for flies and have a fly day. I have a young visitor from the East who gets a cent for each fly he kills in his mother's house. If he started to find them in my house it would be very expensiv. I think the flies are more common in some districts here in the city than in others. That boy saw far more flies than I did. The public school fly day has trained him to see flies.

### Dr. George E. Ebright, San Francisco:

The paper of Dr. Sawyer invites discussion of the very broad subject of contamination of drinking water. The contamination from railroads going over water sheds is only a part of the total cause of sewage contamination—the others comprise country hotels, farms, villages, camps, hunters, etc. However, the amount of contamination from railroads is sufficiently great to make it desirable that it should be removed. Probably the best solution lies in retaining tanks for train sewerage to be emptied at intervals. No doubt public health officials should consider more than has been done in the past the esthetic problem involved.

### Dr. R. W. Corwin, Pueblo, Colo.:

In this connection I should like to say that a few days ago a man came to my office and askt me to tell him what to do for his trouble. I found his body thickly broken out with a loathsome disease. I askt him what sort of work he did and he said he was a pastry cook in a hotel. This certainly is distressing. Something should be done to overcome exposures of this nature.

### Dr. C. W. Hopkins, Chicago:

I have often wondered what excuse the average human being has to live. It has been said that this world is a dangerous place in which to live and very few of us ever get out of it alive. It seems to be one pursuit by bugs and germs, and I guess the best we can do is to try to keep out of their way. Sometime ago I read of a troop of trained fleas that had developt so much temperament that they refused to travel unless they had their private dog. After hearing these papers it is to be regretted that all fleas have not the same temperament.

Regarding the sanitation of the railroad systems; I wish to say that most of the best railroads to-day have a sanitarian who is paid a yearly salary, and who gives his entire time to inspection of yards, toilets, depots, to looking after the water supply furnisht the passenger and the employe, the source of the ice supply and as to how the ice is handled. It has been found that this service has proven a valuable investment in many ways. The timely correction of some undesirable situation has saved many a dollar and has proven a great benefit from the humanitarian standpoint as well.

We are trying to teach employes, as well as passengers, correct sanitary and hygienic habits. The general trend all along the line is toward better education.

The best railroads are examining every employe who has anything to do with the preparation or handling of food. The dining car waiter, the chef, and all assistants are examined periodically for any transmissible disease and are taken out of the service the very instant such disease is discovered. It would therefore appear that the railroads are doing all in their power toward the prevention of disease and sickness, and are working for the general betterment of the human race, regardless of what it costs in dollars and cents.

## Dr. Woods Hutchinson:

I think we have all been interested and instructed by these papers, which are very decidedly typical of one of the foremost and most vital questions we have to do with. We have had an illustration of how our point of view has changed within a few years. One of our learned brothers, a shining light in the world of law, recently stated that the law does not concern itself with trifles. We are glad and proud to state that the medical profession does concern itself with trifles and thus safeguards the public health. A few years ago it would have been lookt upon as an absurdity that an individual who presents himself as a passenger should be questioned as to whether he was a carrier of some insect or microscopic bug.

You are familiar with the case of "Typhoid Mary" in my city. She was a woman employed as a cook and has been traced as the cause of something like six epidemics of typhoid with eighty or ninety cases and seven or eight deaths. She had to be taken in charge and is now permanently incarcerated where she can no longer scatter the disease by uncleanliness thruout the community in the way she insisted upon doing.

As to the way mosquitoes can be carried from long distances, in New York City we suffer, of course, from the long distance Jersey mosquitoes, the celebrated forty-mile flier. They are brought by the wind. The mosquito usually stays close at home, but this one goes a long way from home. It does not, however, carry malaria. At times we have suffered from the ordinary fresh water mosquito in New York. We could not account for it until we examined the cisterns on top of the big buildings where water was kept in case of fire. The eggs of the mosquito came down thru the pipes in the croton water, hatcht in those cisterns and scattered all over the city. By screening those cisterns we were able to get rid of them.

The question of keeping control of insects is of enormous importance. They are bad, but we are the real Ethiopian in the wood pile. They cannot do any damage until they have bitten one of our human family and become infected. A man is known by the bugs he keeps. The fly and the yellow fever mosquito are two species of most dangerous breed in and around and about the human habitation. But if we keep our own door yards clear and protect the insects from becoming infected by diseased human beings we have a sure method of protection.

Dr. Sawyer, closing:

In my paper I may have given the impression that I felt that the train and steamboats were places where the carrier was peculiarly dangerous. I believe that on the train the people who prepare our food are better supervised than in the average restaurant which we patronize off the train. When it comes to preventing carriers from being present among passengers, I feel that but little can be done on the train and steamboat, and that our fault is that we have so few full-time local health officers thruout the country to reduce communicable disease and control carriers at home. Until we have better public health service and reduce our local typhoid rates to such a point that there will be few travelers who are affected, there will continue to be a certain amount of danger from carriers on steamboats and trains.

# THE RELATIONSHIP OF COMPENSATION ACTS TO INTERSTATE COMMERCE.[1]

By **Christopher M. Bradley**, A.B., LL.B., Counsel to the Industrial Accident Commission of the State of California, San Francisco.

The legislature of the State of Washington enacting a compulsory compensation law, in 1911, made this declaration in Section 1 of the law:

> The common law system covering the remedy of workmen against employers for injuries received in hazardous work is inconsistent with modern industrial conditions. In practice it proves to be economically unwise and unfair. Its administration has produced the result that little of the cost to the employer has reached the workman and that little at large expense to the public. The remedy of the workman has been uncertain, slow, and inadequate. Injuries in such work, formerly occasional, have become frequent and inevitable. The welfare of the state depends upon its industries, and even more upon the welfare of its wage workers.

This is a legislativ epitome of the reports of all the legislativ commissions—some thirty in number—that have investigated the subject. This includes the National Commission, known as the Sutherland Commission, which investigated the subject with reference to common carriers engaged in interstate commerce, making its report to President Taft in 1912. Twenty-five states have enacted compensation legislation in varying forms as a result of these investigations and reports. Tho Congress has not yet enacted the statute proposed by the Sutherland Commission, but it is to be hoped that thoro-going legislation will be enacted at the next session.

In its primary aspect "compensation" is a name; it is nothing more than the name of a remedy; it is commonly called "workmen's compensation." This is quite a misnomer. It is no more workmen's compensation than it is employers' compensation, or public compensation. It is not compensation at all in the first view of the enactments establishing the principle, but it is relief. It is designed to ameliorate the unsatisfactory and unwholesome conditions of which so much complaint has been made,—to relieve the courts, the employer, the employee and the public. It is designed to distribute both burdens and benefits. In practical operation experience has demonstrated that it works such results.

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[1] Read at the 40th Annual Meeting of the American Academy of Medicine, San Francisco, June 28, 1915.

Under compensation there is an equalization of burdens and benefits between the immediate parties; while the employer is made liable, in all proper cases of accident, for a known, definit and limited amount he is relieved from the speculativ, indefinit and unlimited liability which existed in some cases; and while the employe surrenders a present doubtful, expensiv and, therefore, unavailable right of recovery of unlimited damages in some cases, he receives in exchange a sure, expeditious, inexpensiv and available remedy in all cases. In addition to the distribution of burdens and benefits as between the immediate parties, there is a second kind of distribution of the burden, that is, the indemnity payable is chargeable to the industry in which the injury or death is suffered, and the cost of the indemnity is carried over into the price of the product or the service, as the case may be. Furthermore, the burdens may be even more widely distributed, in practice, by insurance coverage, which is the ideal condition with reference to all compensation liability.

Compensation is not damages, nor meant in principle to be partial damages, nor is it based upon the idea of tort nor meant to be a reparation for a wrong. In principle it is the payment or advance, in the first instance, of the employer's share of a common loss in a common undertaking. It has, therefore, none of the injustice of the present law, by which the employer, without real fault, is often held liable in full damage just as if he had done a wrong.

The principal objects to be attained in a compensation act are:

1. To encourage the introduction, maintenance and use of preventiv devices and preventiv discipline so as to reduce the number of accidents to the reducible minimum.

2. To furnish certain, prompt and reasonable compensation, limited in amounts and time, to the injured employe, which should consist of

(*a*) Medical and surgical treatment and adequate hospital service immediately after the injury and for a limited time there-after, to cure and relieve from the effects of such injury and to restore the sufferer to the ranks of producing labor.

(*b*) Such limited compensation or financial aid to the injured workman, based upon his wage income, as will maintain him and those dependent upon him above want until he recovers from his injury or can develop a self-sustaining capacity.

(*c*) In the event the accident results in death, then such limited aid to those dependent upon him for support as will keep them above want until they can develop a self-sustaining capacity.

Treating compensation, then, as a system of relief, it is here insisted that the prime component of such a system must be provision for adequate safety measures and for the enforcement of them, for the reason that prevention is to be emphasized rather than cure or financial assistance to the sufferer, in the same degree that emphasis is placed upon preventiv measures in the field of medicine and surgery to guard against disease and physical impairment.

Much has already been accomplisht in the safety field, both by legislation and by the initiativ of railroads themselves. Congress has enacted a Safety Appliances Act, the Hours of Labor Act, and other fragmentary legislation, and has made provision for a system of inspection, under the jurisdiction of the Interstate Commerce Commission, to secure enforcement. While these measures have brought some relief, and while the railroads have co-operated to some extent, the official reports disclose that the system of inspection is wholly inadequate and that the co-operation of the carriers is not general in the observation of statutory safety requirements. In this situation it would seem advisable, in drafting a Federal compensation law for the government of carriers of interstate commerce, to incorporate provisions for a safety department and to centralize in an administrativ body all the necessary powers of safety regulation and enforcement.

Closely allied to adequate provision for safety measures and their enforcement, and coming second for emphasis in formulating a Federal statute, is the provision for medical and surgical benefits for the relief of the injured, to accomplish the result of restoring them to efficiency with the least loss of time and with the least physical impairment as the result of injury. The magnitude of the financial outlay for medical and surgical treatment and hospital service, as an item of compensation, is not generally appreciated. Of the total money cost of compensation, an average of approximately 40 per cent. is expended under this head. When it is understood that charges for this item are made upon a much reduced scale, some estimate can be made of the volume, the value, and the importance of the service.

The third division of a compensation system is usually the one kept most prominently in view in all discussions of compensation measures. It is the provision of financial benefits based upon the percentage of earnings, to be paid in installments, as wages are paid, for the purpose of carrying the disabled employe and his dependents over a period of adversity. The relief accomplisht under this head is of the greatest sociologic and economic value. It places the money quickly and directly, without diminution, where it will give the needed relief. It dispenses with damage litigation. It stops the drain upon public and private charity. It tends most strongly to the elimination of hostility between the employing railroad and its employes, and sustains an even standard of living and independence, making for the restoration of activ efficiency in the field of labor, or accommodation to a new line of endeavor, for which the disabled man may be fitted.

Official statistics, compiled by the Interstate Commerce Commission for the year ending June 30, 1913, disclose that in the year immediately preceding there were 3,715 railroad employes killed by accident and 171,417 employes who suffered accidental injury in the course of their employment. The record for the succeeding year, 1914, shows 3,259 killed and 165.212 injured,—a slight reduction. Other reliable statistics inform us that during the year 1913, industrial accidents in the whole field of industry in the United States caused the death of an employe every fifteen minutes and the injury of an employe every sixteen seconds, based upon a day of twenty-four hours, including Sundays and holidays. Applied mathematics will demonstrate how great is the proportion of railroad industrial accidents to all other accidents. The figures at hand cannot fail to strike the conscience of civilized society as making a situation calling for relief. It is a continuous appalling disaster.

Since the report of the Sutherland Commission, in 1912, it can no longer be doubted that there is to be found in the realm of interstate commerce the most appropriate field for the operation of a compensation law. At the present time there is no proper relationship between state compensation acts and interstate commerce. Only this much can be said: there are some twenty-five state compensation acts; there is a tremendous amount of interstate commerce, both by rail and by water, and the frequency of accidental death and accidental injury has already been indicated. No interstate commerce by rail is toucht or affected by state compensation acts, for the simple reason that the power to regulate interstate commerce is constitutionally vested in the Congress, and tho the Congress has entered the field of regulation of the relation of employer and employe with reference to personal injury cases, by enacting the statute of April 26, 1906, it has never enacted a compensation act covering this status. The law is a negligence law, but it is sufficient to exclude the operation of the state laws in the larger classes of cases, that is, where the injury is suffered by an employe employed in interstate commerce.

The state laws can operate only where the employe is not employed in interstate commerce. Nearly all of the state statutes contain an express disclaimer of jurisdiction over interstate commerce cases. Railroads engaged in interstate commerce have taken the position that the state laws cannot be applicable in any case where the railroad is engaged at all in interstate commerce, for the reason that Congress has entered the field of regulation and excludes the state law as to all cases where there is the least color of interstate commerce. The opposite view is that the facts of the occurrence are to be tested with reference to the specific act and the specific service being rendered by the employe at the time he is injured or killed, that is, whether the act of the employe, himself, is in connection with interstate commerce or intrastate commerce.

There lies at the threshold, then, in any case, this question: Was the employe engaged in interstate or intrastate commerce? If he was engaged in interstate commerce, his rights and the obligations of the railroad company must be adjudicated in court under the Federal negligence law. If he was engaged in intrastate commerce, his rights and the obligation of the railroad are to be determined in view of the provisions of the compensation statute in the jurisdiction where the accident occurs. The line of cleavage between interstate and intrastate commerce is a very thin one. This may be best shown by concrete cases.

The Supreme Court of the United States has decided that a laborer who was carrying a box of metal bolts to be used in the repair of a railroad bridge, and who was struck and killed by a train when he was some distance from the bridge, on his way to the bridge, was performing a service in interstate commerce. The same court has held that the fireman of a switch engine, used to handle interstate and intrastate commerce indiscriminately in the railroad yards, and who lost his life by collision in the yards, while the engine was drawing a train of cars containing only intrastate freight, was engaged in intrastate commerce, even tho the switch engine was to be used immediately afterward to haul interstate cars. There cannot be the least doubt that if there had been one car freighted with interstate commerce in the train which was being handled when the fireman lost his life, the court would have held that the deceased fireman was engaged in interstate commerce.

In a case now pending in the Supreme Court of California, the Industrial Accident Commission of this state awarded a death benefit to the widow of a round-house foreman, who lost his life while he was engaged in repairing a switch engine in the railroad company's round-house. The engine had been withdrawn from service for repair three days before the accident and was not restored to service until three days after the accident. When in use the engine was used indiscriminately for handling both interstate and intrastate commerce. The theory of the decision was, *first*, that the employe was not engaged in either kind of commerce, because the engine had been detacht from service in any kind of commerce; and, *second*, that the service being performed by the employe at the exact time he lost his life was wholly detacht from interstate commerce. The railroad company has taken the case to the Supreme Court on the theory that all its employes are employed in interstate commerce. You may decide this case.

These illustrations will show how great is the confusion when it is understood that each case must be decided upon its own facts. After so many disagreements between the Federal courts and the state courts as to the proper criterion to determine jurisdiction, it is an adventure to attempt to deduce a workable rule for all cases. However, it is believed that the Congress has only covered the field in cases where the injury or death occurs, (1) while the carrier is engaged in using the particular instrumentality in a specific act of interstate commerce, and (2) while the employe is performing a specific service in interstate commerce. In other words, the status of the parties to determine jurisdiction is not defined upon general considerations, but upon specific considerations. As to employes suffering injury or death while repairing instrumentalities, it is thought that these are the proper tests:

(1) Did the instrumentality remain in use in interstate commerce?

(2) Was the instrumentality at the specific time, place and circumstance of the injury, then being used in interstate commerce?

Accordingly, as this preliminary question is determined, you have a case to be decided under either the terms of the Federal negligence statute or any one of the state compensation acts, depending upon the location of the accident. The confusion is more apparent when you understand that the measure of liability is not the same, that the procedure is not the same, and that the measure of any of the rights is not the same under any two of the state compensation acts. Neither the railroads nor the employes know where to turn for relief or for protection. This situation would be clarified to a great extent by the enactment of a national compensation act covering all employes employed by carriers engaged in interstate commerce, limited only according to constitutional requirements as laid down by the

Supreme Court of the United States. While there would remain the preliminary question in a large class of cases, liability would be fixt and known within definit limits, much more clearly defined, and under the same kind of a law. It would also eliminate much of the competition for jurisdiction.

It is to be hoped, also, that uniform compensation legislation will be evolved out of the present chaos of state statutes when the system of compensation, as a system of relief, has been tested and a larger experience accumulated. Should this be brought about so that the state acts generally, and the national act specifically, covering employes engaged in interstate commerce, are nearly parallel in terms, we would have a solution in a measurable degree of a most perplexing set of problems.

Limited time forecloses exhaustiv discussion of more than a few of the compensation problems in the field of interstate commerce. The conflict between state laws and the admiralty law involving the intricate problems of conflict of laws, Federal with state, and state with state, and on navigable interstate and intrastate waters, will suggest to you how far you may travel, both at home and abroad.

There is no act of Congress covering maritim personal injury cases, and it is thought there is room for the operation of state statutes to a limited extent, unless it shall be finally determined that the constitutional grant of exclusiv jurisdiction over maritim matters to the Federal courts will operate to exclude the jurisdiction of the states even over navigable waters wholly within state boundaries. Numerous of these questions are now pending in courts of last resort. The issues are made up in many forms, that is, with reference to accidents occurring on the high seas, on navigable waters within the state, and in the home port of the ship, in ports of foreign states, and in the ports of foreign countries. In the absence of legislation by Congress, it would seem that jurisdictional rights, and, therefore, substantiv rights, must be workt out by judicial decision.

The most pressing problem for solution is that with reference to interstate commerce by rail, and I would respectfully suggest it to be the duty of organizations in the sociologic field to give careful and studied attention to the problems which I have been able to give here only passing consideration, with a view to the exercise of proper influence for the enactment of adequate compensation legislation by the Congress in the field of interstate commerce by rail.

### DISCUSSION.

Dr. Woods Hutchinson, New York:

This interesting paper of Mr. Bradley's deals with an attempt, and a successful one, to cure one of the most outrageous injustices and unfairnesses in our industrial system. In an investigation made by the Associated Charities in New York, some eight or nine years ago, of some two thousand cases of death in industries, it was shown that the average amount paid and reaching the workman's family was about three hundred dollars. Another investigation conducted by another organization more recently showed that the average damage paid for a life taken in industry was one hundred and seventy-five dollars. When conditions reach that pitch, even the law sees that something has to be done. However, I am not sure that with the confusion and overlapping of state law, interstate law and Federal law, we would not have been better off to allow every case to be determined on its own merits by a committee of the neighbors, with no appeal from their decisions.

Mr. Bradley, closing:

There is little to add to what has been written. The problem under discussion is a very live one at the present time. The report transmitted to President Taft in 1912 received from him, in his message to Congress, as strong a recommendation as was ever placed on record, I think, by a President of the United States.

I am told that the defeat of the legislation proposed by the National Commission was effected by one or two of the railroad men's labor organizations. That is not attributing to those organizations any improper motiv because my further information is that such activity as they displayed against the legislation was prompted by personal injury lawyers who had benefited in a great many personal injury cases against the railroads. That very system has been encouraged and nourisht by the present "negligence" statute upon the Federal statute book, because that statute takes away certain common law defenses and makes it easier for the employe who recovers anything to recover very substantial damages, out of which liberal fees are paid. It is plain that there will be strong opposition again to the enactment of a Federal compensation law. However, I think that opposition can be intelligently combatted by such organizations as this. The railroad men themselves have come to understand their mistake in fighting against this sort of legislation, and I am strongly of the opinion that at the next session of Congress they will be present, asking for a Federal law to clear up some, at least, of this confusion.

## FROM THE FIELD.

The alleys of Washington and their sanitary condition have long been a matter of concern to those who make the National Capitol their home. They realized the intimate connection between bad housing and bad health and good housing and good health, but in spite of the fact that they are lighted, cleaned and paved and sewers and water mains laid in them the same as in the streets of the city the mortality rates for the alleys still exceeded those for the streets. Finally the conclusion was reacht that no matter how modern the alleys were in respects to sewers, paving, etc., as long as the old dwellings were allowed to be tenanted conditions could not improve. So Congress has enacted a law, to go into effect July 1, 1918, prohibiting these houses to be used as dwellings. In the meantime a series of model homes, to be known as the Ellen Wilson homes, are to be erected as the old dwellings are demolisht and it is felt that the erection of these homes will solve the problem of Washington's alleys.

E. F. R.

* * *

The annual report of the Medical Department of the United Fruit Company for 1915 conveys the sad information of the death of Dr. Swigart, the General Superintendent and Organizer of the Department. His death is a loss not only to the Company but to the medical profession.

This report deals largely with statistics but demonstrates the excellent work carried out under the direction of the Company for the welfare of its employees and the sanitary care of the passengers on its numerous steamers. During the year past the cyanide method of fumigation has been adopted on the vessels controlled by the Company as a more effectiv method of ridding them of vermin, and measures have been adopted to render the steamers rat-proof.

C. M.

* * *

The National Collegiate Athletic Association has for its object "the regulation and supervision of college athletics thruout the

United States, in order that the athletic activities in the colleges and universities of the United States may be maintained on an ethical plane in keeping with the dignity and high purpose of education." Its membership consists of representatives from the various colleges and universities thruout the United States. The proceedings of the tenth annual convention of the Association held in New York City in December, 1915, is on our table and shows that the Association is taking a live and intelligent interest in college athletics. C. M.

## NOTES AND NOTICES.

The Department of Labor and Industry of the Commonwealth of Pennsylvania is having a series of quarterly conferences for physicians in Harrisburg, Pa. The second one of the series was held in the State Capitol, May 18th. It is the intention of the Division of Industrial Hygiene and Engineering to have subjects discust which will comprise all fases of the problems of the prevention and treatment of vocational diseases and industrial accidents, thus making the conferences a "clearing house" that will be a real service in solving the problems and difficulties arising in practice.

* * *

The Department of Labor of the State of New York has issued a special bulletin giving the European regulations for the prevention of occupational diseases, covering five of the eight industrial diseases (poisoning by lead, brass, mercury, comprest air illness and anthrax) reportable by physicians to the Labor Department under the New York law. It makes a valuable pamflet for reference for those who are interested in the prevention of industrial diseases.

* * *

By inaugurating a plan for employees' pensions, disability benefits and death benefits in 1912, the American Telephone and Telegraph Company anticipated much of the workmen's compensation and health insurance legislation which is being enacted in this country. During the year 1915 the benefits paid from these various funds reacht a total of $1,397,742.

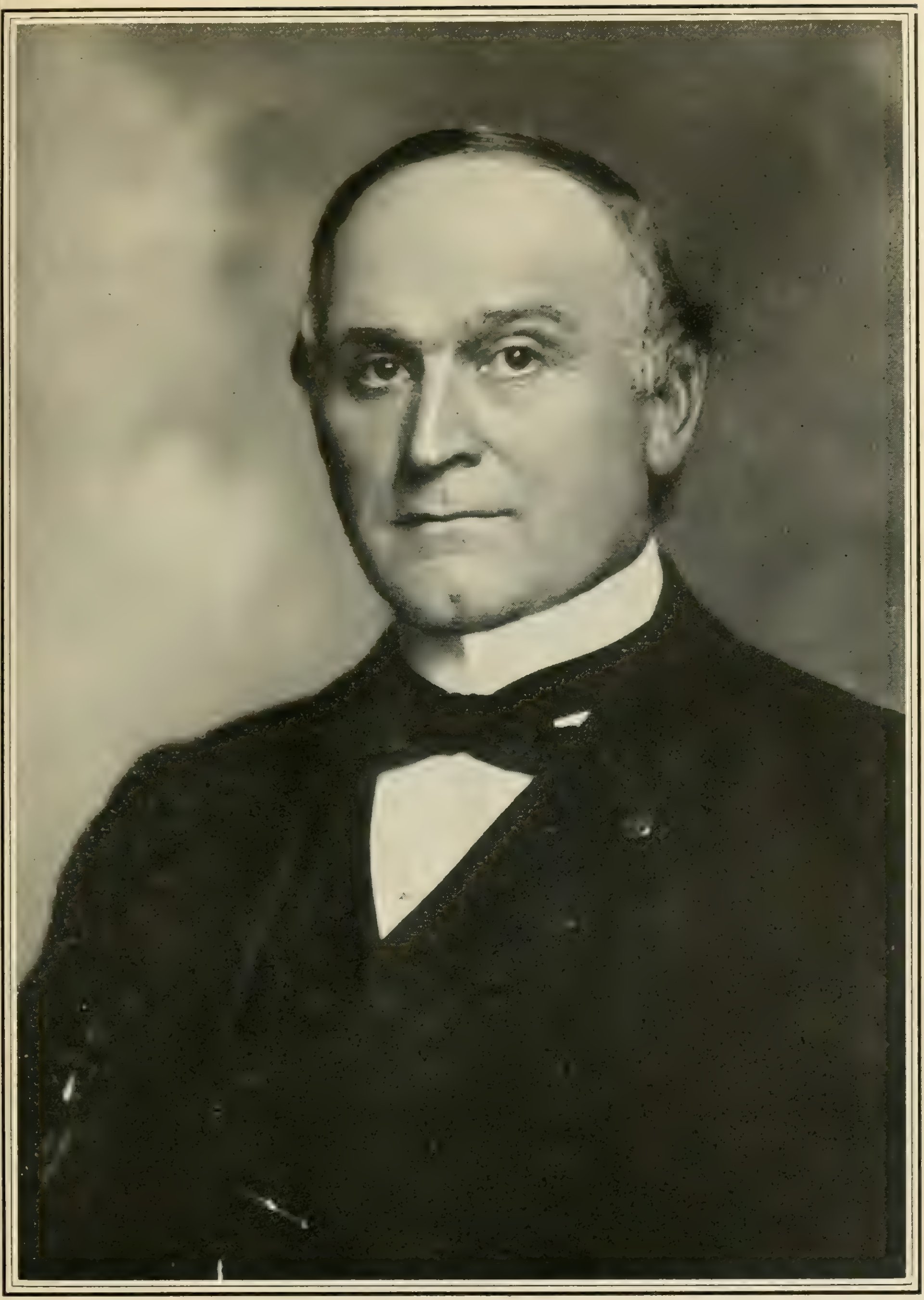
### THOMAS D. DAVIS, M.D.

Thomas D. Davis, M.D., united with the American Academy of Medicine in 1886 at the beginning of the Academy's second decade, and since that time has been actively interested in the work of the organization. This gave Dr. Davis a commanding position in the life of the Academy and compelled every member to regard him as a personal friend. Consequently, his death, which occurred April 3, 1916, at the home of his son, Dr. William M. Davis, St. Petersburg, Florida, has brought a sense of personal loss to each member of the Academy. Altho Dr. Davis had not been in robust health for three or four years, the illness which resulted in his unexpected death was of but three days' duration.

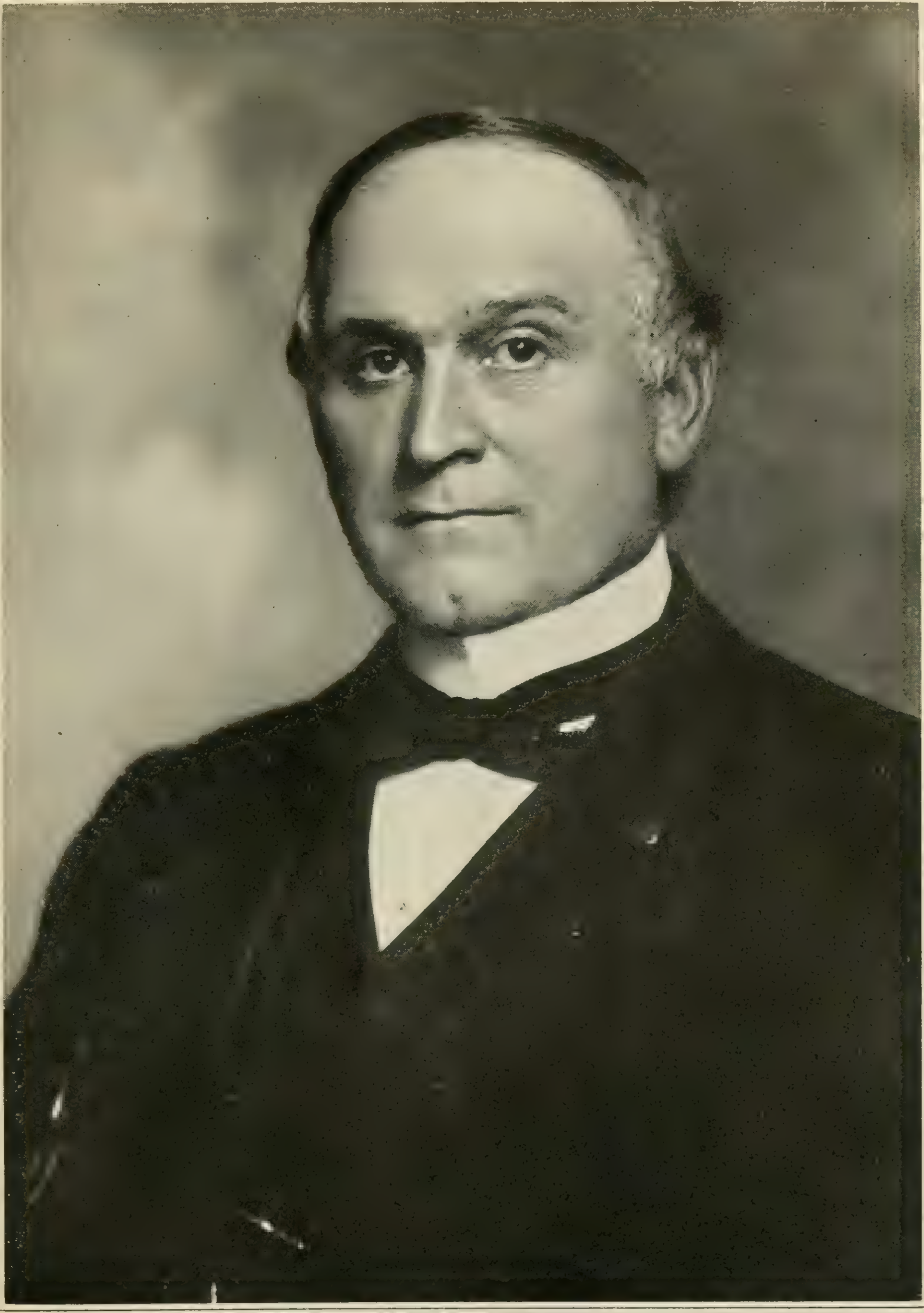
Dr. Davis was born in Morgantown, West Virginia, April 20, 1846, the son of the Rev. James and Margaret W. Davis. He was graduated from Washington and Jefferson College in 1866, and received his degree in medicine from Jefferson Medical College in 1870. After serving as intern in a Philadelphia hospital he located at Dayton, Ohio, where he lectured on ophthalmology in Starling Medical College. In 1878 he located in East Liberty, Pittsburgh, where he continued to practice his profession until his death.

His commanding position in his profession is evidenced by his having served as president of the Allegheny County Medical Society in 1891, as president of the Medical Society of the State of Pennsylvania in 1900, and as president of the American Academy of Medicine in 1908. The esteem in which he was held by his fellow citizens of Pittsburgh is shown by his having been elected school director for a continuous term of twenty-five years, and by the fact that he served for a term of years as president of the Academy of Science and Art, as a member of the Board of Managers of the Allegheny County Industrial School for Boys, and of the Board of Trustees of the Western Theological Seminary; he was also for forty years a ruling elder of the East Liberty Presbyterian Church.

Dr. Davis was a commanding figure at the meetings of the Academy. Whenever he undertook the discussion of a question,



Thomas David Davis, M.D., Ph.D., 1846–1916.



Thomas David Davis, M.D., Ph.D., 1846–1916.

the presentation of his views was forceful and logical. He was earnest and sincere, however, being ever ready to concede to those who opposed his views the privilege of establishing their point and of converting his, but it was necessary to convince him of the error of his position before he himself conceded. With all he commanded the respect of those who could not agree with him. His wide practical knowledge concerning the public school system permitted him always to contribute to the constructiv discussion of any pedagogical question which was presented. His careful observation made his remarks interesting whenever public health was under discussion, or a sociologic subject presented.

Mrs. Davis died in April, 1915. Two sons, Dr. William M. Davis, of St. Petersburg, Florida, and Reuben Davis, of New York; two daughters, Mrs. Florence Baldwin, of Montclair, New Jersey, and Miss Margaret Davis, at home; two sisters, Mrs. Martha Frew Harbison, of Denver, Colorado, and Mrs. Anna Carr Skene, of Chicago, survive. Funeral services were held at the East Liberty Presbyterian Church, Pittsburgh, and the burial the following day at Blairsville. A. R. C.

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We are in receipt of the Bulletin of the Directory of Biologic Studies, an official bureau of the Mexican government. It is interesting to know that despite the unsettled political condition of that country efforts are making for purely scientific investigation. These bulletins contain articles of local interest, which are of value to the scientific biologist anywhere and it is to be hoped that the Directory can be maintained on as high a plane as the first two numbers of their Bulletin seem to indicate.

* * *

As a result of the medical inspection conducted during the school year of 1914 and 1915, under the direction of Dr. Samuel G. Dixon, Commissioner of Health, 83,000 children in the rural schools of Pennsylvania were found to have defectiv eyesight. 1,184 had defects of the right eye, 1,750 defects of the left eye, and 53,814 had defects of both eyes.

The *Biological Monograf* issued by the University of Illinois for October, 1915, contains an article by John Earl Gutberlet on "The Osteology of Some of the Loricati." Those of us who are not ichthyologists will have a clearer idea of the study when we are told that the loricati are first cousins of the sculpin. The relation of sculpin to sociology is so remote that we must let the work pass with this notice, again commending the University of Illinois for publishing these extended and intensiv studies in natural history, making possible for other students to refer to the results of investigations not otherwise obtainable. C. M.

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The Rome (New York) State Custodial Asylum will hold a Summer Training School for Teachers from July 3 to July 29, 1916, which will be open to graduates of normal schools and teachers' training schools. The institution is supported entirely by the State of New York for the purpose of caring for all ages, grades and conditions of feeble-minded, its 200 officers and employees and fourteen teachers caring for 1550 feeble-minded persons. Those interested may obtain further information from Dr. Charles Bernstein, Superintendent, Rome State Custodial Asylum, Rome, N. Y.

* * *

The third annual Summer Graduate Medical Course at Stanford University is announced. This course covers a period of six weeks, from July 6 to August 15, 1916, is designed primarily for the benefit of the medical profession and is open to all licensed physicians and graduates of recognized medical schools. Those desiring to attend should register before the sixth of July. Any desirous of obtaining additional information concerning the sessions should address the Dean, Stanford University Medical School, Sacramento and Webster Sts., San Francisco, Cal.

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The Kansas Medical Society celebrated its fiftieth anniversary by holding a pleasant meeting at Topeka on May 3, 4 and 5, 1916.

The *Military Surgeon* for April, 1916, appears in a highly decorated cover, making its appearance superior to any medical journal coming within our view and probably not surpast by any journal of any description whatsoever. There is also some improvement in the presswork and the contents of the journal, excellent as it has been heretofore. Apparently the effort is making to have the mechanical appearance of the periodical the peer of any in the land while as to the character of its contents, it hopes to make itself a fitting exponent of the able, progressiv and powerful organization which it represents.

* * *

The movement for Health Insurance in this country is rapidly growing, and the interest of the medical profession in it is obvious. Health Insurance is closely related to the prevention of disease and the improvement of the health of the community. It concerns the medical profession because of the possibility of far-reaching changes in its relation to the community at large.

The American Medical Association recognizes both the social value of Health Insurance and the necessity of a harmonious adjustment of the new relations between physicians and laymen. It has recently organized a Committee on Social Insurance with Dr. Alexander Lambert of New York City, as Chairman.

Relating to this subject bills have already been introduced in Massachusetts, New Jersey and New York, and there is a possibility of a United States Commission being establisht for the investigation of the whole subject of Social Insurance. There is a State Commission in California, and the movement is also very strong in Ohio.

Social Insurance should interest the medical profession for at least two reasons: First, it brings with it preventiv medicine and measures of public health, and second, it may closely effect physicians in a financial way. T. W. G.

* * *

This year comes the 300th anniversary of the death of William Shakespeare and it is most fitting that this tercentenary be observed all thru the civilized world. Shakespeare's admirers hav claimed him to be a master lawyer, a master physician, etc., etc. We now know that the plots and materials for his plays were freely borrowed from contemporary writers, but that detracts nothing from his transcendent genius. If he took a popular play of the day and rewrote it, he made it immortal by rehabilitating it with his wonderful art and clothing it with the products of his amazing gifts of imagination and observation. We can hardly claim him as an apostle of sociologic medicine, but we can all admire his genius, his many-sidedness and his power, and join with the rest of the civilized world in paying homage to the Bard of Avon.

T. W. G.

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Inquiry has been made regarding railroad rates to the Detroit meeting of the Academy. The time limit of the American Medical Association rates does not permit their use for the Academy meeting but the regular Summer excursion rates go into effect on the first of June and are available for all who desire to attend. These rates are essentially the same as given to the American Medical Association with the added advantage of a longer limit and better facilities. Make inquiry of your local ticket agent regarding Summer excursion rates and their flexibility before purchasing your ticket.

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The title of the President's address has been received too late for insertion in the program. It is "The Relation of the State to Motherhood and Children."

## ACADEMY PERSONALS.

**Scott, Dr. J. McPherson**, has been re-elected Mayor of Hagerstown, Md., for the fourth consecutiv term.

**Van Duyn, Dr. John**, Syracuse, N. Y., has gone to France to serve in a military base hospital.

**DeWolf, Dr. Halsey**, Providence, R. I., and Miss Edith Howe, of Philadelphia, were recently married.

## NECROLOGY.

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|---|---|
| 1915, Aug. 16. | A. R. Moulton. |
| 1916, Jan. 10. | Joseph H. Hewitt. |
| Apr. 3. | T. D. Davis. |
| Apr. 11. | Charles F. Gilliam. |

## GLEANINGS.

Doctor Richard C. Cabot has been writing on "Better Doctoring for Less Money" in the American Magazine. In a very frank way he has been discussing the various fases of the relationship between the public and the medical profession. Speaking of state insurance he makes the following thoughtful observations:

> What about the natural sickness insurance systems of Germany and England? These are not organized for profit, but by the state itself. They are cheap and comprehensiv. Do they not accomplish all that there is here advocated and more? The right answer to this question seems to me the most important issue confronting anyone who desires to improve medical service in the United States at the present day. For it is highly probable that some form of sickness insurance, state or national, will be tried out in this country before long. Before this is done, it is my earnest hope that we may learn not only from the successes but from the failures of our brethren across the seas, and may adopt what is good while avoiding what is bad in their systems. *The great fault in the English and German systems of sickness insurance is that they do not center their medical service around organized groups of physicians—that is around hospitals.* They will rest upon the primitiv conception of the doctor working alone, like a cobbler or a peddler, not in organized groups. They still cherish the exploded beliefs that the isolated physician can make satisfactory diagnosis and give satisfactory treatment in a large proportion of cases. They still harp upon cheapness rather than upon a good quality of service. Whenever sickness insurance gets a footing on a large scale in this country, I hope with all my heart that it will start right instead of wrong, and I hope that it will be planned and led by those who know most about it—namely, by the physicians.
>
> Nothing could be worse for the reputation and dignity of our profession than to become engaged, like the English medical profession, in an unseemly scuffle with the Government, to lose in the fight, and finally to be dragd, kicking and struggling, into the enemy's camp and forced to do what they had previously and angrily refused. Let us make our experiments and gain our competence in small, voluntary groups before the State tries to take over so delicate and dangerous a task—especially the State as we now have it,

governed not by those who know most about the task of government but by those most skillful in climbing, by fair means or foul, into government chairs.

* * *

There is one profession, however, in which the educational processes have been adequately changed, but only within recent years, namely—the profession of medicine. The reason for the comparatively early improvement of medical education is that the medical art has always depended for such measure of success as it attained on the physician's power of accurate observation, and his faculty of reasoning cautiously and soundly on the testimony which his senses gave him. From remotest times the successful physician has been by nature a naturalist. He saw and heard straight, and his touch gave him trustworthy information. He has still, and must always have, the naturalist's temperament, and he must possess the naturalist's trained senses. The reason that medicine and surgery have within twenty-five years made such astonishing progress is that the practitioner, possessing the senses and mental habits of the naturalist, has been supplied through the progress of biological, chemical, and physical science with wonderful new means of accurate diagnosis. The training the medical student now receives is largely individual training in the use of his senses; and this training is given by experts in the use of their own eyes, ears, and hands in diagnosis and treatment. The just reasoning follows on the trustworthy observation. What has already been done in medical education needs to be done in all other forms of education, whether for trades or for professions, whether for occupations chiefly manual or for those chiefly mental.—*Charles W. Eliot in "Changes Needed in American Secondary Education," publisht by the General Education Board.*

* * *

Dr. John W. Trask, Assistant Surgeon-General of the United States Public Health Service, in an interesting article in the Public Health Reports for March 17, 1916, on "Death Rates of the Colored Population, their trend and significance in the United States," comes to the following pleasant conclusion:

It is believed that the comparison of mortality rates previously discust shows (1) that the colored death rates of most communities of the United States are not discouragingly high; (2) that they are undoubtedly lower than they have been in the past; (3) that they are as low as many white population groups possest 20 or 30 years ago, and are in fact as low as some white populations possess at the present time; and (4) that with the economic and industrial progress of the colored population its death rate will gradually approach nearer to that of the white population.

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## LITERATURE NOTES.

GOULD'S PRACTITIONER'S MEDICAL DICTIONARY, Third Edition, Revised and Enlarged. By R. J. E. SCOTT, M.A., B.C.L., M.D., of New York. xx + 962 pp. Flexible cloth, round corners, marbled edges. Price, $2.75. P. Blakiston's Son & Co., Philadelphia.

There is nothing that falls behind the times more rapidly than a medical dictionary. The investigators both in the science and art of medicine must make it difficult for the lexicografers. We are glad to have the "Gould" brought nearly up to date. We say "nearly" advisedly because new medical terms grow up over night and to keep one's dictionary fully up to date would require a daily issue with probably an occasional evening edition. Recognizing this condition we think the book under review is as thoroly up to date as is possible to make it, and altho a third edition it is an entirely new work as the type has been reset thruout, thus affording an opportunity to eliminate words past out of use and give the editor opportunity to include all new terms. It seems to fulfill its claim of a modern dictionary for physicians and medical students, containing essentially all the words that are needed by them. In doing this, however, the editor has not departed from the system devised by Dr. Gould that has made his dictionaries so consultable and reliable. The face of the type is clear and easily readable, altho of a size that permits the definition of over 70,000 terms within the space of the book. Every consultant of a previous edition of Gould will want to possess this volume and those who are seeking for a dictionary should examine this one carefully before deciding to purchase another. CHARLES MCINTIRE.

SELECT DISCUSSIONS OF RACE PROBLEMS. A Collection of Papers of Especial Use in the Study of Negro-American Problems. Atlantic University Publications, No. 20. Paper, pp. 108. Price, $0.50. Atlanta, Ga.: The Atlanta University Press.

Since 1896 the Atlanta University has been conducting annual conferences on social studies in respect to the Negro race in the United States, and has in these years presented to the public valuable data bearing upon the advancement of the Negro. In the course of its investigations many thought-to-be truths of the past have been found to be fallacies, and much material for scientific study has been presented. In this pamflet are to be found some of the products of these recent researches on race questions and are gathered together in a single volume for the benefit of those who are interested and yet have not access to the scattered papers. The titles of the articles in the pamflet, as given below, show the character and scope of the papers.

I. Races of Men.
II. Anthropological View of Race.
III. Anatomical Characters of the Human Brain.
IV. Racial Differences in Mental Traits.
V. The Mind of the Savage.
VI. Old African Civilizations.
VII. The Contribution of the Negro to Human Civilization.
VIII. Race Problems in the United States.

C. M.

*The Lancet-Clinic* appears in a new dress, which is very becoming. The new editor, for such is Dr. Martin H. Fischer, has taken advantage of the change of face to change the make-up. This may be for betterment but is rather confusing to the exchange editor until he gets accustomed to the new order of things and knows where to look for such items as he desires to find.

## ACKNOWLEDGMENTS.

**[It is intended to acknowledge all reprints received since the issue of the last number that are not otherwise noticed. The present list records the publications received (other than periodicals in exchange) from March 23 to May 2, 1916, inclusiv.]**

This acknowledgment is considered a full return for the courtesy of sending us the publication. Additional notice will be given when space permits. Publications treating of medico-social question will be given precedence in the fuller notice.

U. S. Bureau of Labor: Bulletin No. 191, Collective Bargaining in the Anthacite Coal Industry. Monthly Review, Vol II, Ap. '16, No. 4.

U. S. Bureau of Mines: Technical Paper No. 129, Metal-Mine Accidents in the United States, 1914.

U. S. Geological Survey: Mineral Resources of the United States, 1914. Part II, Nonmetals.

New York State Department of Labor: Bulletin No. 75, Statistics of Industrial Accidents, 1914. Bulletin No. 76, European Regulations for Prevention of Occupational Diseases.

The Management of Exceptional Children. By Tom A. Williams, M.B., C.M., Edin., Washington, D.C. (Reprint.)

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## REPRINTS.

Acknowledgment is made of the receipt of reprints upon topics of medicine other than medical sociology from Drs. William Seaman Bainbridge, New York; Russell H. Boggs, Pittsburgh; and Wolff Freudenthal, New York.

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